EBRUARY 1958

S+T

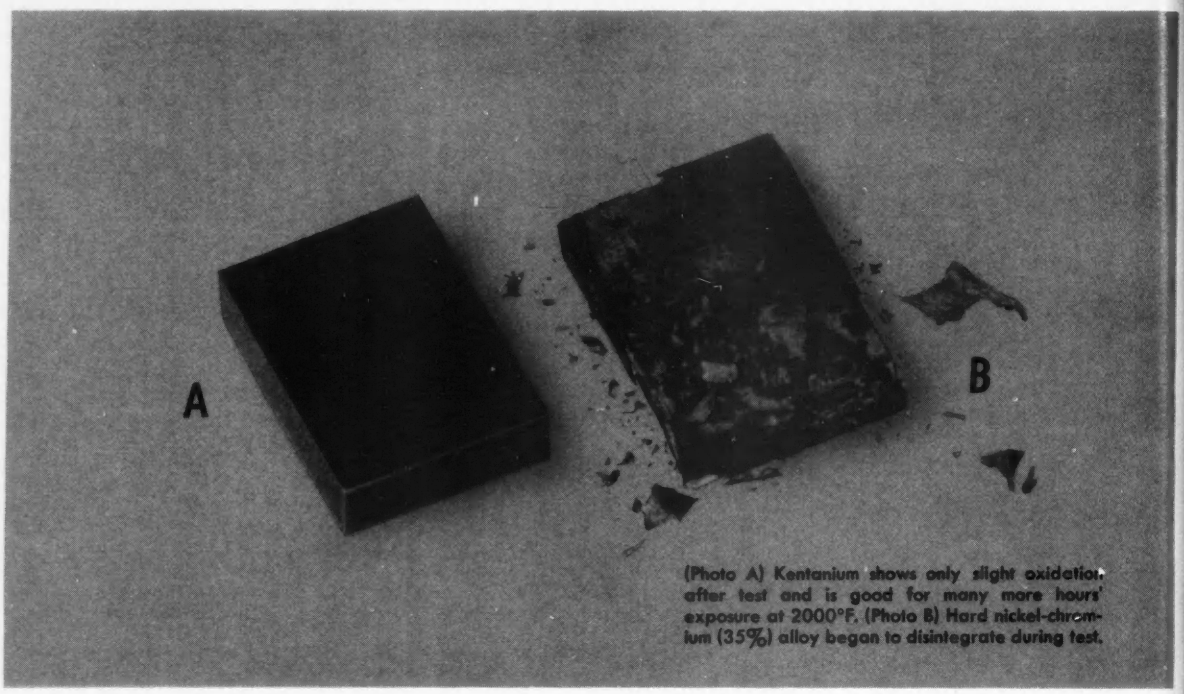
data

RECORDING OPTICAL TRACKING INSTRUMENT
FOLLOWS MISSILE MANEUVERS

GOVERNMENT RESEARCH AND DEVELOPMENT DIGEST

In this issue . . .

SPECIAL REPORT ON THE
AIR FORCE OFFICE OF SCIENTIFIC RESEARCH



(Photo A) Kentanium shows only slight oxidation after test and is good for many more hours' exposure at 2000°F. (Photo B) Hard nickel-chromium (35%) alloy began to disintegrate during test.

KENTANIUM* UNHARMED at 2000°F

while heat-resistant nickel-chrome alloy disintegrates

Exceptional resistance to oxidation, combined with great strength at very high temperatures, are characteristics of Kentanium, a titanium carbide composition.

A square of K161B Kentanium and a similar square of a well-known, heat-resistant 35 chromium-15 nickel alloy were exposed for 120 hours in an unsealed muffle furnace heated to 2000°F. The accompanying photographs vividly show how each piece was affected. While Kentanium is still good for hours of exposure at high temperatures, the nickel-chrome alloy has oxidized badly and has begun to disintegrate.

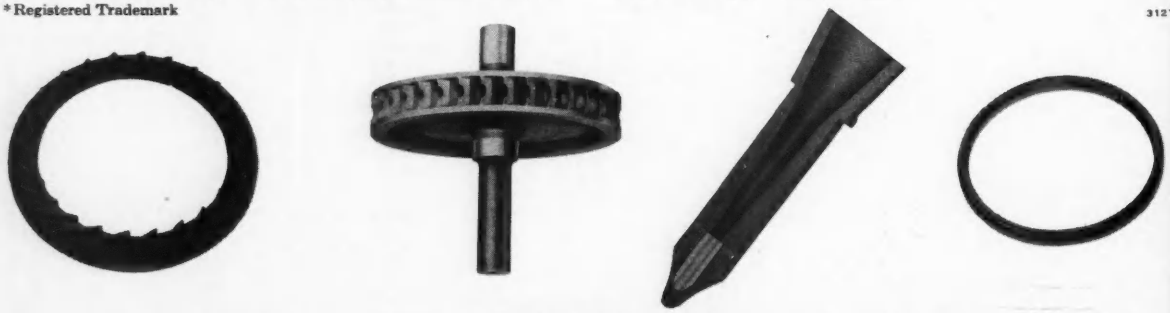
This demonstration suggests how well Kentanium will perform in such applications as furnace parts, heat-treating fixtures, quench guide rings, turbine blades, nozzle vanes, bushings and other parts where strength at high temperature, plus high resistance to oxidation, are factors.

Parts illustrated below are applications of Kentanium. The Kentanium series represents only a part of Kennametal's wide range of hard carbide compositions that are helping designers who require metals offering high resistance to abrasion, deflection, deformation, impact or corrosion.

Perhaps one or more of these Kennametal* compositions will help you get your idea off the drawing board into production. These materials are described and many applications discussed in two booklets: B-111-A "Characteristics of Kennametal," and B-222 "Designing with Kennametal." Write KENNAMETAL INC., Dept. DT, Latrobe, Pennsylvania.

*Registered Trademark

3127



MINING, METAL AND WOODWORKING TOOLS

WEAR AND HEAT-RESISTANT PARTS

INDUSTRY AND KENNAMETAL ...Partners in Progress

ABRASION, CORROSION-RESISTANT PARTS

PERCUSSION AND IMPACT PARTS

. . . keep up to date with data* magazine

Volume 3 Number 2

Published monthly
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Publisher: J. S. SMITH

FEBRUARY 1958

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OUR COVER
Technicians sit at dual sighting telescopes on PERKIN-ELMER's new optical tracker, ROTI II. Its long range, power mounted, telescopic camera tracks missiles and collects data at Melbourne, Fla. It is capable of recording closeup views of ballistic missiles fired from Cape Canaveral, 15 miles away.

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DATA PUBLICATIONS

1346 Connecticut Ave., N.W., Washington 6, D. C.

* Title registered United States Patent Office

AFOSR

SPECIAL MESSAGE TO DATA READERS:

It is very gratifying that DATA is giving the Air Force Office of Scientific Research (Air Research and Development Command) this opportunity to tell you about our work. Through this AFOSR issue, I want to invite any of you who are working in exploratory basic research fields to discuss your proposals with members of my staff, to determine the possibility of Air Force interest and the extent of financial support we might be able to provide.

Let me assure you that it is easy to do business with AFOSR. We are always eager to know of any possible exploratory research that will build scientific capital. You may feel free to write, visit, or telephone us at any time to discuss your proposal informally, even before you put it into writing.

Sincerely,

H. F. GREGORY
Brigadier General, USAF
Commander, AFOSR

Brig. Gen. Hollingsworth F. Gregory, USAF, assumed command of the Air Force Office of Scientific Research in March 1956.

Born in Rockwell, Texas, January 13, 1906 he joined the Army Air Corps in 1928, learned to fly at Brooks and Kelly Fields, Texas. His assignments have included duty at the Air Materiel Command at Dayton; Seventh Air Force in the Pacific Theatre; Assistant Chief of Staff for Intelligence; Operations and Materiel in Washington; Research and Development Board of the Secretary of the Air Force in Washington; and Air Attache in Paris. He holds many commendations.

AIR FORCE OFFICE OF SCIENTIFIC RESEARCH

Room Numbers: Headquarters of the Air Force Office of Scientific Research are in the Tempo "T" Bldg., 14th and Constitution Ave., Washington 25, D. C. Room numbers shown on this chart are for that building.

Phone Extensions: Main number of the Air Force Office of Scientific Research is the same number for the Department of Defense, Liberty 5-6700. Extensions shown on this chart are requested after first dialing the main DOD number.

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February 1958

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Dupont Circle Bldg.

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Washington 25, D. C.
LIBERTY 5-6700

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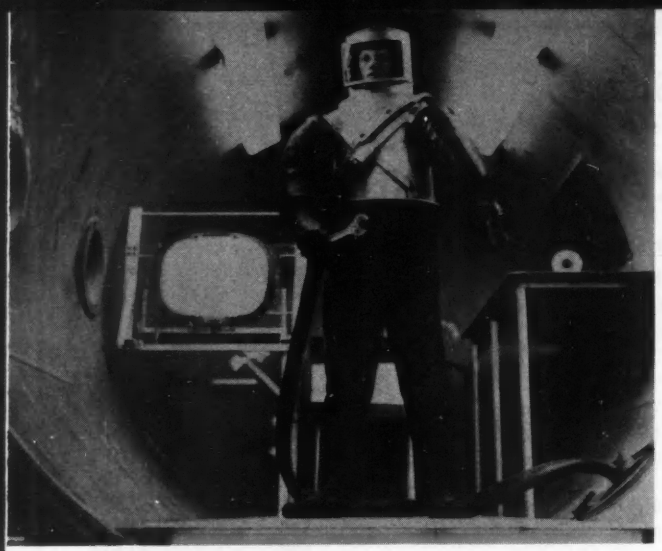


Scientist demonstrates full protective suit at AFOSR-Litton Industry's High Valuum Lab in Beverly Hills.

AFOSR

AIR FORCE OFFICE OF SCIENTIFIC RESEARCH

The Air Force Office of Scientific Research is that activity of the Air Research and Development Command which has *the mission of conducting an exploratory research program for the United States Air Force.* AFOSR is sited in Washington, D. C. Its activities are primarily in the management of a large contract research program in the United States and other countries of the world.

The purpose of this special section on the Air Force Office of Scientific Research is to show you, the DATA reader, what AFOSR is and what it does, and how present and potential contractors may make contact with AFOSR to participate in its *exploratory research programs.*

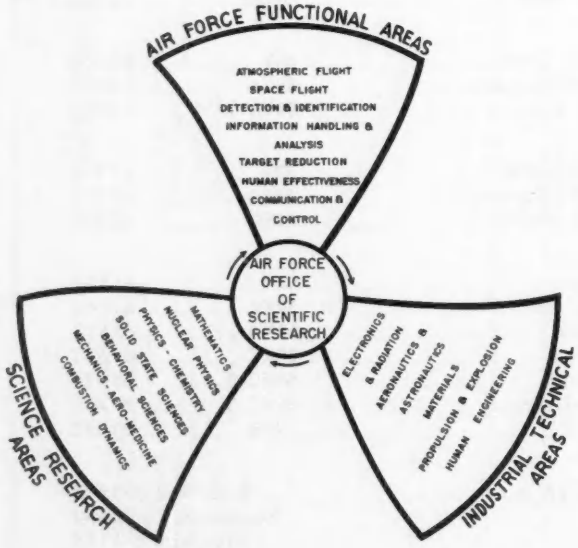
A Translating Agency

AFOSR is a translating agency between the scientific disciplines and the Air Force. It serves as a connecting point between original and imaginative thinkers and those technicians who in practice can apply the new principles.

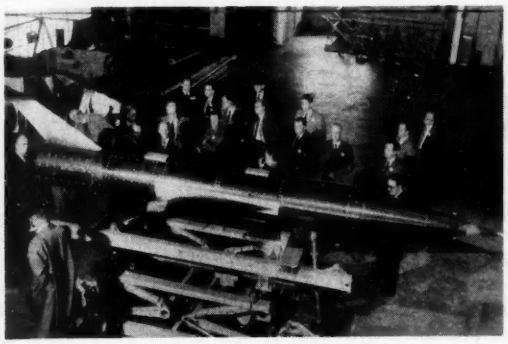
In 1951 the Department of Air Force established the AIR RESEARCH AND DEVELOPMENT COMMAND (ARDC) as a major command. The Air Force Office of Scientific Research was activated as a field organization of ORDC in August, 1955, and given the responsibility for conducting an *exploratory research* program for the Air Force. Previous to August 1, 1955, the Office of Scientific Research (OSR) was formed in September, 1951, as part of the staff of of HQ, ARDC.

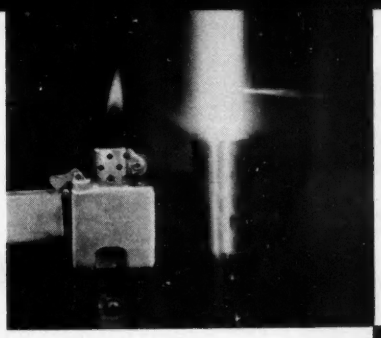
The Air Force Office of Scientific Research has a large job to do. It must plan, formulate, initiate and manage an *exploratory* research program for the Air Force that will insure maximum strength and efficient use of the strategic scientific potential of the United States and its allies in support of air technology. AFOSR must establish and maintain contact with scientists, not only in the U. S. but in other countries of the world as

EXPLORING ANSWERS FOR WHICH THERE HAVE BEEN NO QUESTIONS...

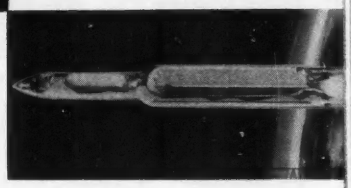


NATO aeronautical scientists inspect model at Arnold Engineering Development Center. AEDC is wind tunnel center for ARDC.





Iron boils at 8270° F. in cyanogen-oxygen flame developed at Temple University under AFOSR. Lighter flame is 3250° F.



AFOSR sponsored exploratory research in propulsion leads to systems with far superior abilties.

well, to pool information and technical know-how so that immediate use may be made of collected results. And AFOSR must maintain a close check on just who is doing what so there will be no duplication of effort.

Exploring Answers for Which There Have Been No Questions

Exploratory research, applied or basic, is fundamental, theoretical or experimental investigation to further man's knowledge and understanding of the natural world. It builds scientific capital and replenishes the stockpile of knowledge which will be used to build the air weapons of the future. *Exploratory research provides answers for which there have been no questions.* This is the type of research where the scientist works on developing science for the sake of science. No objectives are set down. AFOSR does not make a requirement to its contractors that their proposal have a direct link to the furtherment of some specific Air Force project. In its program of *exploratory research* AFOSR says to its contractors, "Find the truth. We will find the tie-in."

Supporting Research

Where *exploratory research* is nondirected, *supporting research* is. In standard military practice an "operational requirement" is formulated for a specific piece of equipment such as a vehicle. As this op requirement is broken down into necessary constituents, it may be discovered that existing materials and techniques are not adequate to meet the requirements and that it is necessary to discover something better. This search for an answer to a specific question or a solution to a specific problem is called *supporting research.* As *exploratory research* is sometimes referred to as nondirected research, *supporting research* is often called directed research and may b eeither applied or basic.

Both . . . for Survival

Both *exploratory* and *supporting* research projects are supported by the Air Force. The parent research organization, ARDC, feels that one can never underestimate the speed with whim a new scientific discovery can be put into practical use. This holds true for the enemy as well as ourselves. Thus, the Air Force feels it must sponsor an *exploratory research program* for future survival and a *supporting research program* for immediate survival.

AFOSR and You

This special AFOSR issue is the first of several special issues which DATA will publish in order that you, our readers, will become more familiar with various activities of the Department of Defense . . . for the benefit of both DOD and you.

This special issue is designed so that you, the DATA reader, will know more about the Air Force Office of Scientific Research, so that you will have in handy reference form the names, titles, responsibilities, room numbers and phone extensions of top AFOSR leaders. We have tried to show you in this special issue who to call for what, what AFOSR wants you to do, what are the research areas of AFOSR and how to correctly prepare a proposal for an AFOSR contract.

Many DATA subscribers could become AFOSR contractors if they knew more about the activity, what AFOSR wants and how to prepare the proposal. And for the conscientious professional officer who reads our publication, here is an opportunity to know something of another military activity, what it does to keep his country strong and free.

We hope these special issues will be popular, that you will save them and refer to them frequently. We wish to thank Brig. Gen. H. F. Gregory, Commanding Officer of AFOSR, and his information specialist, Mel White, as well as the other AFOSR personnel who cooperated in making this special AFOSR material available to you, our readers.

. . . the editor, DATA

AFOSR
...AREAS OF RESEARCH

Since the AFOSR research program is growing and changing yearly, the following list of research areas of the various divisions of AFOSR interests is not to be regarded as immutable. It does, however, present current AFOSR research interests.

DIRECTORATE OF AERONAUTICAL SCIENCES

MATHEMATICS DIVISION

AFOSR has a great interest in many phases of mathematics, as evidenced by a wide range of requirements arising from the complexity of modern weapons systems. AFOSR feels that advancements in mathematical concepts and analytical techniques are foundational to advancements in the sciences, and mathematical tools for analysis and solution of problems are a vital requirement in all phases of the AFOSR research program.

Some of the mathematics fields that hold special interest to AFOSR include the following:

1. **Applied Mathematics**
2. **Probability and Statistical Methods and Design**
3. **Modern Analytical and Topological Methods and Techniques**
4. **Mathematical Structures and Systems**
5. **Numerical Analysis and Computational Techniques**

MECHANICS DIVISION

The interest that AFOSR has in mechanics goes to the basic principles. Ideas for development in basic mechanics will be welcomed even if the principles seem to have no readily apparent translation to an Air Force weapon.

New configurations for missiles and airplanes, especially the introduction of thin, shell-like structures for both wings and bodies, are especially desired.

COMBUSTION DYNAMICS DIVISION

The Combustion Dynamics Division is primarily concerned with the physical and chemical processes by which energy is provided for propulsion of aircraft. Some of the fields of interest of this division are the following:

1. **Sources of Energy**
2. **Energy Release and Transformation**

DIRECTORATE OF PHYSICAL SCIENCES

PHYSICS DIVISION

Recent advances in technology and weaponry have used up a large part of past stockpiles of scientific knowledge, and are generating urgent demands at an increasing rate for the extension of the present limits of knowledge. To meet some of these current and anticipated future needs for increased technological potential and wider knowledge, the Physics Division of the Directorate of Physical Sciences of AFOSR conducts an exploratory research program relating broadly to the states of matter, the production of radiation and the flow of energy.

NUCLEAR PHYSICS DIVISION

Program of this division is aimed at maintaining, and accelerating, the rate of recent advances in knowledge by supporting exploratory research, both theoretical and experimental, which contributes to more thorough understanding of the fundamental nature of matter. The requirements for manned and unmanned vehicles with operational capabilities beyond the earth's effective atmosphere demands propulsion systems with abilities far in advance of those possible with equipment now used in the present state of the art. In addition to continuing investigations of such muclear sources as fusion and fission reactions, AFOSR is also interested in ionic accelerators and photonic drive studies.

In order to meet the continuing and rapidly changing technical environment, emphasis is being placed on utilizing the vast amounts of energy potentially available from nuclear sources and on investigations of importance to the understanding of the radiation phenomena which influence the extra-terrestrial traveler.

DIRECTORATE OF RESEARCH INFORMATION

TECHNICAL INFORMATION AND INTELLIGENCE DIVISION

This division is concerned with the storage, retrival and dissemination of printed information. It contains, for example, the only technical Air Force Library in Washington. This division monitors research in novel bibliographic techniques, and in those aspects of information storage and retrieval theory which approach the problem from the library side.

PRESENTATIONS DIVISION

Information on the research accomplishments of AFOSR contractors is gathered from project scientists, scientific reports and interviews with contractors. This information is distributed, primarily through the AFOSR publication *AFOSR Research Briefs*, to ARDC, USAF and DOD activities, and to other AFOSR contractors.

LIAISON AND ANALYSIS DIVISION

This division has the responsibility of selecting, analyzing and integrating scientific information on a broad basis, recognizing significant trends and patterns and

preparing appropriate research papers based on these studies. It is also responsible for maintaining an awareness of the strategic and tactical concepts of the USAF, and provides a means for recognizing the significance of scientific discoveries as affecting the concepts of strategic planning.

DIRECTORATE OF ADVANCED STUDIES

The Directorate of Advanced Studies of AFOSR is concerned with research which will yield knowledge necessary to the functional needs of the Air Force of the future. Of prime interest is the application of knowledge obtained from other research programs to formulate useful improvements in Air Force capabilities. This program covers numerous areas and is carried out under the following divisional structure:

SYSTEMS DIVISION

1. **Atmospheric and Extra-Atmospheric Flight**
2. **Advancerd Propulsive Systems**

TECHNIQUES DIVISION

1. **Detection and Identification**
2. **Novel Control Techniques**

DIRECTORATE OF BIO-SCIENCES

Problems of environmental control depend on engineering advances based on principles derived from fundamental research. Assessment of the effects on man of newer environmental stresses which may have injurious effects; for example, radiation from power plants or cosmic rays, or which may affect his performance and well-being as, for example, subgravity and weightlessness situations, are little understood and require continued emphasis.

AEROMEDICAL DIVISION

The Aeromedical Division and Behavioral Sciences Division of AFOSR work together. Aeromedical concentrates on physiology, biochemistry and biophysics. Neurophysiology and studies related to the controlling role of the nervous and endocrine systems receive major emphasis.

Works which can bring about some snythesis from the various specialized views taken of man are greatly needed.

BEHAVIORAL SCIENCES DIVISION

Working with Aeromedical, the Behavioral Sciences Division of AFOSR initiates basic and exploratory research in scientific fields holding promise of discovery of fundamental knowledge or new research techniques which will contribute to the better understanding of human behavior. The division encourages interdisciplinary research to utilize research personnel and facilities in the area of the psychological, anthropological, sociological and psychiatric disciplines.

DIRECTORATE OF MATERIAL SCIENCES

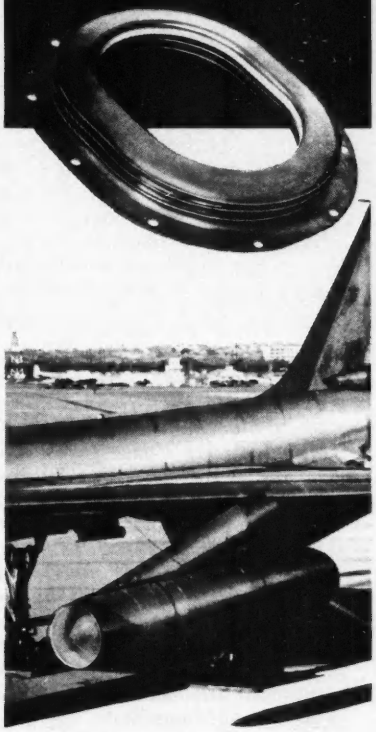
CHEMISTRY DIVISION

The Chemistry Division gives priority to those exploratory chemical research projects that combine an experimental and theoretical approach to areas of general applicability. The aim is to encourage the investigation of those fundamental principles that govern the formation, stability and reactivity of classes of materials that are or may become important to the Air Force.

SOLID STATE SCIENCES DIVISION

The science of the solid state is a very wide field and includes many branches. It is concerned with physical properties of solids, particularly special properties exhibited by atoms and molecules because of their association and regular periodic arrangement in crystals of interest to scientists in specialized and diverse fields—physics, is given to broad, conceptual aspects of atomic and molecular phenomena basic to the mechanisms of behavior and function or growth and degration of matter. Particular emphasis is given to studies of crystal defects such as dislocations, vacant lattice sites and interstitial atoms, impurities, excitons, electrons and holes, and phonons.

STARTER EXHAUST BELLOWS for JET ENGINES



Magnilastic can custom tailor bellows in practically any size or configuration after many years of experimentation, engineering, design, testing and manufacture.

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PREPARATION OF

Air Force Office of Scientific Research is primarily interested in basic research proposals generated in the minds of the scientists or the research workers who will eventually perform the actual research involved.

AFOSR research contracts are based, in the main, on unsolicited original proposals which are technically evaluated by AFOSR staff with the aid of consultants and advisory grous. In evaluating a proposal for research, three salient factors are considered:

(a) Scientific merit of the proposal.

(b) Availability of contractor facilities and trained personnel to accomplish the proposed research.

(c) Past accomplishments of the proposer.

In rendering a decision on research proposals, AFOSR places a premium on ideas, concepts, and theories, on initiation and development of radically new research capabilities, and in development of new research teams and scientific leadership.

Any individual or organization (industrial, academic or Federal) may propose a research project to AFOSR.

An original and seven (7) copies of the formal proposal should be submitted to the Commander, Air Force Office of Scientific Research, Washington 25, D. C. The original copy must be signed by the principal investigator, and certified by a legally authorized official of your business office or, if submitted by an individual, it can be signed by the individual only. Your proposal should be as brief and concise as possible and must include the following information:

1. Introduction and Summary

a. Project Title: Choose a brief, descriptive title.

a. Organization in whose name the contract is sought: If a corporation, give full corporate name and state of incorporation. State designation and address of business office and name(s) and title(s) of authorized business officials.

c. Principal Investigator: State name of the scientist or engineer who is to direct the research.

d. Total Estimated Cost.

e. Preferred Starting Date and Estimated Duration: Indicate date you wish contract, if awarded, to become effective, and length of time for which support is desired under the proposal. Preferred starting date should be at least six months from date proposal is submitted to allow time for processes of technical evaluation and procurement negotiations.

f. Brief: Give concise technical summary of proposed research.

2. Requirement

State briefly the specific objectives of proposed research, including estimation of the need for expected results.

3. Approach

Describe the experimental and theoretical methods to be employed in order to attain the desired objectives. Exposition should be sufficiently detailed and complete so that reviewing scientists can readily understand essential features of the proposed approach.

4. Background History

Review scientific background of work that has been done by your organization and others and indicate point of departure for your proposed research.

5. Statement of Work

Present accurate and concise statement of salient steps (described in detail under 3. **Approach**) which will take to obtain desired results. Great care should be taken with phraseology so that it may be incorporated as part of contract.

6. Research Personnel

a. Give names and qualifications of principal research scientists who are to direct and to conduct investigation. Information is desired as to education, research and research - administration experience and publications.

b. Normally it will be expected that the principal investigator will devote at least 25% of his time to a project. If estimated costs provide payments for principal investigator's time, *state* the percentage of his time to be devoted to the project and *state* that this time is and will be available, regardless of other duties.

c. Indicate extent to which these key personnel are to be concerned with work on other concurrent contracts. Include project titles, names of sponsoring agencies and expected durations of these projects. It is advisable that a percentage breakdown of each principal worker's time be shown.

7. Equipment

Describe equipment (major equipment having a normal useful life expectancy of at least the term of the contract) which will be necessary to accomplish the research. Separate those items which are already available at your organization from those which must be procured.

8. Estimated Costs

Detailed cost analysis, as outlined below, should be submitted for period for which support is requested. Worthwhile cost estimate should contain only necessary and pertinent data to substantiate figures.

a. Direct Salary Costs: List salaries or wages to be paid each per-

AFOSR RESEARCH PROPOSALS

son directly connected with the project, including an estimate of the fraction of time involved and established hourly rate. Itemize employee benefit charges, and what overtime, if any, is absolutely necessary and expected, with complete justification.

Give complete information on salaries of individuals to be paid at rate in excess of $15,000 per year. This should include name, title of position, experience, responsibilities and salary for past three years. Similar data are required for individuals who have had or expect a salary increase of 10% or more, explaining reasons for such increase.

b. Overhead or Burden Rates: These rates are based on the contractor's current operating experience, unless negotiated provisional rates are in use. If overhead rate has already been negotiated by a government agency, you should tell when this was done, and by what agency. Tell if you expect a sizable increase in future overhead rate.

If previous audit and determination of overhead rate has not been made by a government agency, it will be necessary to state basis of your overhead costs, such as "salaries and wages" or "total costs," an dperiod of your fiscal year.

c. Expendable Materials and Supplies: Material costs will be a direct charge unless otherwise stated. Give item description, quantity or units, and cost per unit.

d. Equipment: This item is required when any nonexpendable equipment is expected to be a direct charge to the contract. Give brief description of equipment and cost.

If you will need any equipment not made in this country, let AFOSR know, as such purchases require special prior authorization, which usually takes about 60 day to process.

e. Government Equipment Required.

f. Subcontracting and/or Consultants: This should be supported by indication of portion of work to be subcontracted, subcontractors' or consultants' name or names and detailed cost summary.

g. Other Expenses (travel and preparation of reports, etc.) Not Covered in Overhead: Give description of travel anticipated, together with rate at which employees are reimbursed for travel. Other expenses should be itemized.

h. Fee (if any).

i. Total Estimated Cost.

9. Other Information

a. State ability of your organization to finance contracts in the following amounts: $25,000; $50,000; $75,000; $100,000; $200,000; and over.

b. Indicate extent to which your organization is prepared financially to participate in the project. *If an organization may reasonably be expected to support the proposed investigations as part of its own research program, the Air Force Office of Scientific Research prefers a cost-sharing arrangement.*

c. It is generally desirable that research proposals be *unclassified* whenever possible. If, however, it is deemed necessary to classify a proposal, state the exact basis for the assigned classification.

d. Specify other government agencies to which this research has been or is to be proposed, and state what disposition, if any, has been made of the proposal by those agencies.

me. The following statement should be executed by checking the appropriate blocks, sign and include in the proposal:

THE BIDDER (CONTRACTOR) REPRESENTS: (a) THAT HE ☐ HAS, ☐ HAS NOT, EMPLOYED OR RETAINED ANY COMPANY OR PERSON (OTHER THAN A FULL-TIME BONA-FIDE EMPLOYEE WORKING SOLELY FOR THE BIDDER/CONTRACTOR) TO SOLICIT OR SECURE THIS CONTRACT AND (b) THAT HE ☐ HAS, ☐ HAS NOT, PAIR OR AGREED TO PAY TO ANY COMPANY OR PERSON (OTHER THAN A FULL-TIME BONA FIDE EMPLOYEE WORKING SOLELY FOR THE BIDDER/CONTRACTOR) ANY FEE, COMMISSION, PERCENTAGE, OR BROKERAGE FEE, CONTINGENT UPON OR RESULTING FROM THE AWARD OF THIS CONTRACT; AND AGREES TO FURNISH INFORMATION RELATING THERETO AS REQUESTED BY THE CONTRACTING OFFICER.

.....

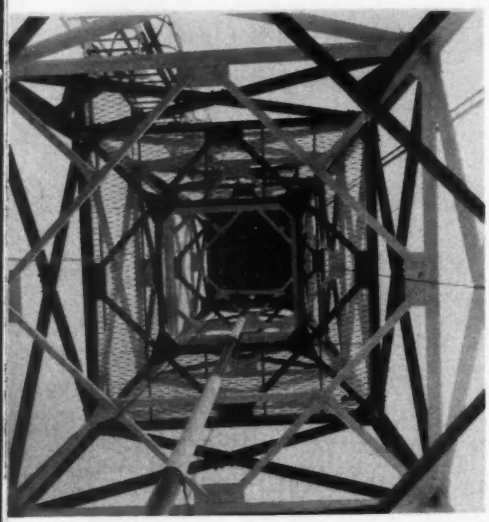
(Signature)

(NOTE: For interpretation of the representation, including the term "bona fide employee," see General Services Administration Regulations, Title 44, secs. 150.7 and 150.5 (d) Fed. Reg. Dec. 31, 1952, Vol. 17, No. 253.)

10. References

a. List all publications and reports referenced in 3. **Approach** and 4. **Background History.** Copies of these publications and reports which have originated from your organization should be transmitted with the proposal.

b. Include a bibliography of the unreferenced literature that has been reviewed. Generally, it is expected that extensive literature surveys will have been conducted before preparing a research proposal.



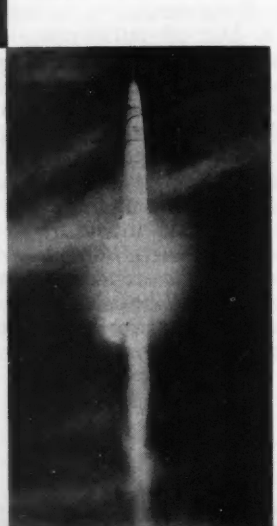
AIR FORCE RESEARCH IN OTHER

Air Force Cambridge Research Center, L. G. Hanscom Field, Bedford, Massachusetts

Carries out broad program of research, development and testing in electronics, geophysical sciences and human engineering. Additional research is conducted in special areas of radiobiology and radiochemistry. Programs conducted to establish and prove fundamental principles and to advance their military applications. Further provides active AF participation and support to a special tri-service project encompassing all aspects of U. S. air defense problems.

Wright Air Development Center, Wright-Patterson Air Force Base, Ohio

One of world's most extensive and completely equipped facilities devoted to aeronautical development. WADC program embraces research, development and testing in technical fields of materials, aerodynamics, human engineering, propulsion, flight control, aeronautical equipment, ground support equipment and the airborne portions of reconnaissance, electronic countermeasures, weapons guidance, electronics techniques, communications and navigation.



Air Force Missile Development Center, Patrick Air Force Base, Florida

Tests long-range guided and ballistic missiles and target drones from its more than 5000 miles of proving grounds stretching from Cape Canaveral, Florida, to Ascension Island midway between the west coast of Africa and east coast of Brazil. This center also does research and development on testing procedures.

Arnold Engineering Development Center, Tullahoma, Tennessee

Plans, constructs and operates series of wind tunnels, and high-altitude test cells for development, testing and evaluation of aircraft, guided missiles and air-breathing propulsion systems. Work is performed for all Armed Services, their industrial contractors and educational and research institutions. Center is grouped into three major laboratories (Engine Test Facility with Ramjet Addition, Gas Dynamics Facility and Propulsion Wind Tunnel) with approximately 20 different test sections and test cells. These are designed to simulate effects of actual free flight; range in size from a few inches in diameter to as large as 16 square feet. Test velocities cover the trans-, super-, and hypersonic ranges, at altitudes from sea level to over 100,000 feet.

Air Force Special Weapons Center, Kirtland Air Force Base, New Mexico

Carries out Air Force's responsibilities in development and testing of nuclear and thermonuclear weapons, their components and associated equipment. Evaluates personnel hazards associated with development, test and operation employment of

ARDC CENTERS

As part of their development, engineering and testing functions, other centers of ARDC, with exception of Armed Services Technical Information Agency (ASTIA), carry on a large volume of applied research-type efforts as an integral part of their programs and without explicit program separation. In addition, other centers may undertake and support exploratory research investigations within research programs of ARDC.

Centers and their major technical interests are describer below:

atomic weapons. Also provides support to Atomic Energy Commission and other governmental agencies in conducting continental and overseas weapon tests.

Air Proving Center, Eglin Air Force Base, Florida

Has responsibility for performing engineering evaluation tests on aircraft, bombing and firing systems and their components, including guns, bombs and rockets. Carries out the development of all conventional munitions, including support equipment, used by the United States Air Force. All bombing and firing tables used by USAF are prepared from information obtained at Eglin.

Air Force Missile Development Center, Holloman Air Force Base, New Mexico

Conducts research and development of assigned guided missile subsystems and components, and in biodynamics and space biology. HADC tests and evaluates missile weapon systems, controlled targets, drones and the operational techniques and associated equipment related to these systems. It also provides test support to Air Force research programs in guided missiles, electronics, geophysics physiology, biophysics and psychology.

Rome Air Development Center, Griffis Air Force Base, New York

Develops, tests and provides tecchnical support for AF ground electronic systems and equipments. These include ground radars, navigation aids, communications, electronic counter-measures and specialized developments for Air Force intelligence and reconnaissance. RADC maintains specialized ground electronic test facilities, including electronic countermeasures test facility for determining anti-jam effectiveness of airborne electronic equipments.

Air Force Personnel and Training Research Center, Lackland Air Force Base, Texas

Makes predictions of the personnel demands which will result from future weapons systems. Predictions involve aptitudes, training and mode of team organization. Three Lackland laboratories, Maintenance, Operator and Personnel, have extension laboratory facilities located throughout U. S.

Four other organizational units, which report directly to the Commander, ARDC, are integral components of ARDC. They are:

The Office of Aircraft Nuclear Propulsion, Washington, D. C.

Responsible for monitoring development of nuclear propulsion for aircraft.

Armed Services Technical Information Agency (ASTIA), Arlington Hall, Alexandria, Virginia

Has field offices in Los Angeles, San Francisco, New York, Washington and Dayton. ASTIA is regional tri-service organization, receives manpower and housekeeping support from ARDC. It is guided at policy level by council reporting to Office of Secretary of Defense. ASTIA provides centralized technical information services to all Department of Defense Agencies and their contractors. Majority of government-sponsored technical reports are available to these contractors on "need-to-know" basis. All AFOSR technical documentary reports are sent to ASTIA. AFOSR contractors are encouraged to make full use of ASTIA services through, inter alia, a standard clause in AFOSR contracts.

European Office, ARDC, Brussels, Belgium

Supported by ARDC in Europe, this office functions in role of stimulating European scientists to undertake research contracts in European scientific institutions. These contracts are monitored by ARDC European Office. They are given technical evaluation and financial support by ARDC centers. AFOSR is largest single contributor among ARDC centers in this program.

Air Force Ballistic Missile Division, Inglewood, California

Responsible for managing the USAF Intercontinental Ballistic Missile program and Intermediate Range Ballistic Missile projects. These include TITAN, THOR and ATLAS. Research interests run the gamut from crash hardware programs to basic investigations.

AFOSR PROCUREMENT OFFICERS

February 1, 1958

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Room 2426, Extension 61513

Cost Analyst
(Position Presently Vacant)

Room Numbers: Headquarters of the Air Force Office of Scientific Research are in the Tempo "T" Bldg., 14th and Constitution Ave., Washington 25, D. C. Room numbers shown on this chart are for that building.

Phone Extensions: Main number of the Air Force Office of Scientific Research is the same number for the Department of Defense, Liberty 5-6700. Extensions shown on this chart are requested after first dialing the main DOD number.

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Atomic Energy Commission
Congress
Depts. of Agriculture, Commerce
Marine Headquarters
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Significant Internal Instructions, Notices and Directives of THE DEPARTMENT OF DEFENSE

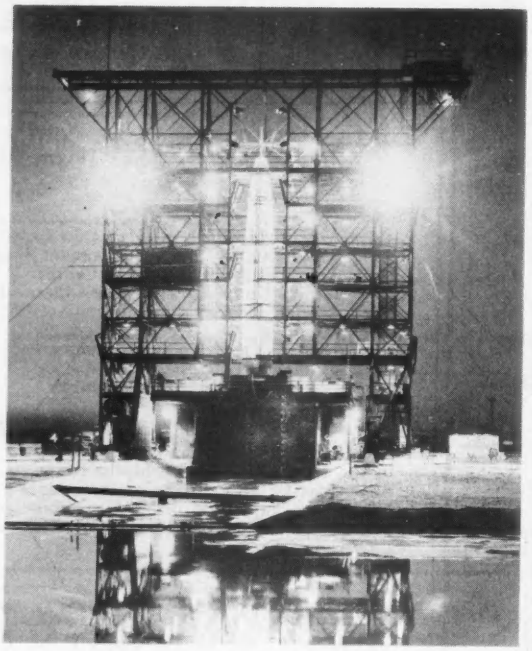
DOD INSTRUCTION 4405.9 OF JAN. 30, 1958

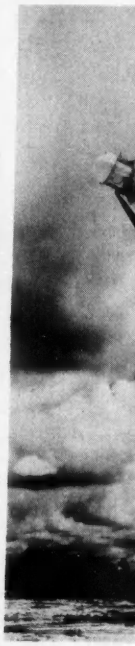
Subj: Delegation of Priorities Authority — Approved DX Programs. WHAT IT DOES: Assures top priority in the deliveries from industry for research and development, production and construction materials subject to authority under DOD's BDSA Regulation 2, which means highest rating. 697 (2) ///DOD 0130/

DOD INSTRUCTION 3230.1 OF JAN. 28, 1958

Subj: Assignment of Popular Names to Guided Missiles, Target Drones and Major Test Vehicles. WHAT IT DOES: No popular names will be assigned to minor test vehicles, only big ones. Requests for approval of popular names for missiles, drones and test vehicles shall be forwarded to Director of Guided Missiles, DOD. 698 (1) ///DOD 0128/

(more instructions summarized on page 2-30)





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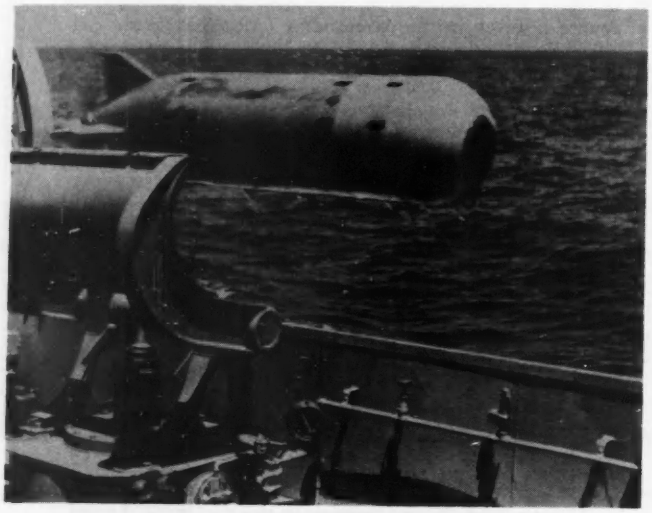
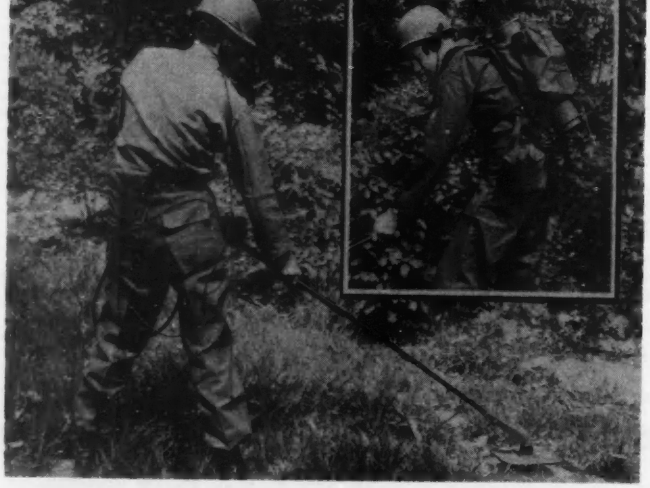


Above: AF THOR 1500-MILE IRBM is shown on pad ready for launching in latest released photo. AF believes THOR can put large satellite in orbit, according to Maj. Gen. Bernard A. Schriever, Commanding Officer of AF Ballistic Missile Division. ///AF 0116 157581AC/

Above left: ARMY'S NEW FIBERGLASS ASSAULT BOAT, capable of carrying up to 15 men with field equipment and weapons, yet weighs less than 300 pounds. ///Army 0120 APS-58-107/



Left: NEW ACOUSTIC-HOMING TORPEDO, MK 32, shown leaving launcher, has been developed by Navy to combine seeking ability with compact size for easy launching. MK 32 can be merely tossed over side of ship. G-E and Philco developed. ///Navy 0115 USN 659660/

Below left: LIGHTWEIGHT MINE DETECTOR, simplified so operators can perform major repairs, has been developed by Army Engineers. Weighing only one-fourth as much as current standard model (inset), seven-pound detector is equipped with transistors. Texas Instrument Co. of Dallas has contract. ///Army 0120 APS 58-108/

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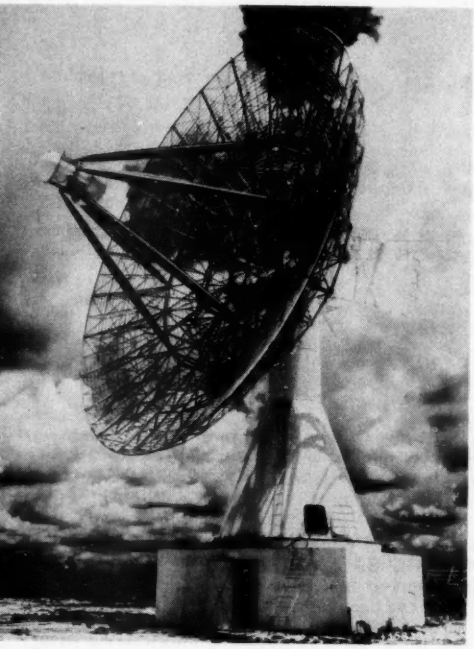

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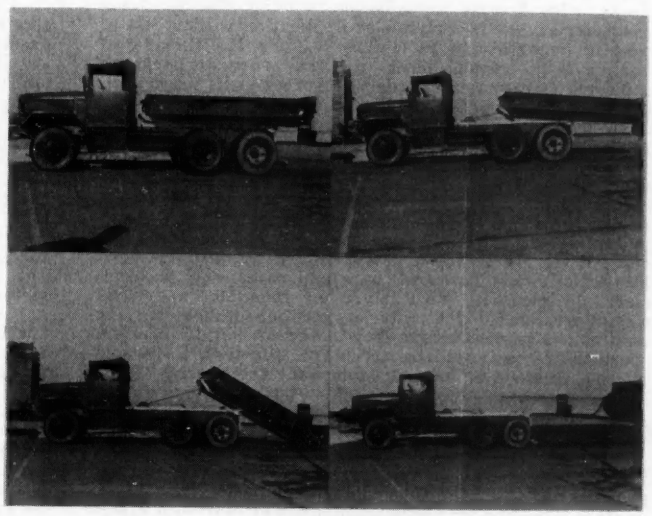


Above: AF TLM-18 AUTOMATIC TRACKING TELEMETRY ANTENNA, believed to be largest of its type in existence, follows paths of U.S. missiles as they streak down 5000-mile test range which begins at Cape Canaveral, Fla. Four M-18 antennas have been built by Radiation, , Melbourne, Fla. ///AF 0120 158133AC/

ve right: ALUMINUM SUIT FOR FIRE PROCTION has been developed by Army at Ft. voir. Expendable suit is actually made of er coated with aluminum foil.
///Army 0123 SC 523898/

ht: TRUCK EQUIPPED WITH SELF-LOADER ndergoing tests at Marine Corps Development ter, Quantico, Va. Self-Loader is manufacd by Tyler Pipe & Foundry, Tyler, Texas.
///USMC 0113 A-405930/

ow right: NEW ARMY AVIATION HELMET highly advanced electronic equipment. Develd by SigCor at Ft. Monmouth, N.J., new helmet s standard Navy AHP5 helmet for shell, but electronic parts are special for Army.
///Army 0123 SC 521959/

Operational Requirements

Operational Requirements are expressed military needs which come from more than one isolated source. An Operational Requirement may or may not become an advertised or negotiated bid dependent upon the strength of the need and the feasibility of manufacture as determined by technical review officers. Sources for more information on the needs listed below are furnished on request. Write DATA, Dupont Circle Building, Washington 6, D. C.

657. ADHESIVE FOR EXPLOSIVES

Scope.—To develop an adhesive having the following characteristics: (1) Capable of application without use of heat in temperatures as low as —40°F; (2) Capable of holding a 2½ pound block of either bare or packaged explosive (wrappings include waterproof kraft paper, cotton fabric and Saran) on a vertical surface for a period of 60 days utilizing about 15 square inches of block surface; (3) Adhesive must be capable of supporting the block on vertical steel, concrete, treated cardboard, plastic and wood surfaces which are relatively free of dirt; (4) Should be capable of supporting the block throughout a temperature range of —40°F to 160°F and not be affected by water; and (5) Adhesive shall withstand storages in airtight containers for a period of five years.

For experimental purposes bare explosives, such as commercially available TNT block or dynamite, and dead weight wrapped in the materials mentioned above may be used as practice materials. Any inert material of about 1.6 specific gravity would be acceptable for test, the whole purpose of the test being to determine the quality of the adhesive.

658. SENSING AND MEASUREMENT OF ATMOSPHERE MOISTURE

The major problem in hygrometry is the making of an absolute measurement of moisture (dew-point, frost-point, relative humidity, or absolute humidity); that is, a direct measurement not involving the measurement of other parameters over the range of atmospheric moisture. This range that is required to be sensed and measured with the desired accuracy and rate of response adds complexity to the instrumentation problem. The range of atmospheric moisture is from 0.3 to 30 grams of water in a cubic meter of air or over a vapor pressure range of .0005 mb to 40 mb. The increments of measured moisture desired is in a dew-point temperature of 1°C, with an accuracy of +.2°C, for atmospheric temperatures above freezing. Below freezing the desired increments are ½°C dew-point temperature with an accuracy of +1°C. The measurement of atmospheric moisture must be made over the range of pressure from 31.00 (sea level) to 0.50 (80,000 ft.) inches of mercury and a temperature range of +50°C to —80°C. A desired rate of response is the ability of the equipment to sense and measure a 90% change in relative humidity in a period of one second.

The resulting hygrometer equipment or instrumentation has to be practical for installation in an aircraft which will travel at airspeeds up to Mach 1.0. Other aircraft that may need this equipment will travel at higher speeds such as vertical atmospheric sounding rockets for geophysics.

659. AUTOMATIC GASOLINE NOZZLE

1. Experience during military operations has demonstrated that with the use of available types of hose nozzles, gasoline is spilled and wasted, and unnecessary time is lost. Other conditions are containers not uniformly filled, and overfilling is a major problem.
2. In order to improve the method of dispensing and eliminate the undesirable conditions, the subject project was submitted to, and approved by, the Quartermaster Technical Committee.
3. The Recommended and Approved Military Characteristics to be incorporated in the design of the Nozzle, Gasoline, Automatic, are:

(a) Nozzles to be light weight, and compact and suitable for Air Cargo transportation.
(b) Suitable for 300,000 cycles of operation and one year storage and/or use in all climates and salt air.
(c) Shall have lock-out device to prevent dispensing when not in place in a container opening.
(d) Shall have automatic shut-off when liquid reaches a predetermined level.
(e) Automatic shut-off to be adjustable for liquid level.

Supplementary.—The nozzle with automatic cut-off features now employed by service stations is already known to the military. It does not have the elements of ruggedness and simplicity of the one required for military use. The one desired must not be subject to corrosion and must be incapable of dispensing except when the nozzle is in the container.

660. LIGHT WEIGHT EXPENDABLE PALLET (Revised)

The Armed Services have a requirement for a light weight expendable pallet having the following characteristics:

1. Approximately 40" by 48" in size.
2. Provide for entry of lift forks from each of the four faces.
3. Be constructed of non-metallic waterproof materials.
4. Be capable of withstanding a minimum load of 1500 pounds per pallet and, when stacked four high in warehousing, a load of 7500 pounds on the bottom pallet.
5. Be capable of withstanding an average minimum of 16 handlings.
6. Constructed in such fashion that the bottom face will not damage the top layer of packages on the loaded pallet directly below in a stack.
7. Be capable of withstanding temperatures of from 125°F to minus 65°F under operating conditions, temperatures up to 160°F for a period of four hours and maximum low temperatures of minus 80°F in storage.
8. Preferably have a weight less than the 75 to 100 lbs. for wood pallets and cost materially less than the approximately $1.75 cost of wood pallets.

661. DEVELOPMENT OF DEPROCESSING PROCEDURES FOR USE IN EXTREME COLD

Scope.—To develop and investigate methods and materials that may be used to remove frozen preservatives from material in extreme cold (arctic) climates. Preservatives become hard and insoluble in petroleum solvents at sub-zero temperatures and none of the commercial solvents will remove the preservatives with any degree of speed or ease.

Military Application.—The development of new deprocessing methods and materials would improve the speed and ease of removing frozen preservatives, eliminate the danger of damaging critical material by using pocket knives or other unsatisfactory methods for removal, reduce personnel exposure, and make equipment ready for operation when needed. At present, frozen preservatives cannot be compeltely removed unless the equipment is placed in a heated building and the preservative allowed to thaw. This is an expensive and time consuming procedure and is not satisfactory in any way for military operations.

Status.—Current research and development includes testing of all commercial solvents and investigation of special preservatives for arctic use only. Steam cleaning has been tried but the difficulties encountered eliminate any possibility of its being a satisfactory expedient.

662. ACETYLENE GENERATION

Scope.—There is a requirement for a substitute for the carbide method of generation of acetylene.

Military Application—Generating acetylene for military uses.

Status.—The most promising method seems to be that of passing higher hydrocarbons through an electric discharge, and reforming the molecules into acetylene, hydrogen, and small amounts of various other saturated and unsaturated hydrocarbons. In Germany at Huls, this type of production has competed successfully with carbide-generated acetylene, on a large scale commercial basis, using methane or coke-oven gas as the starting material. Since the energy efficiency of conversion of the known processes to date is on the order of 30%, it would seem that a process which had a more attractive energy efficiency and used a heavier hydrocarbon such as fuel oil for starting material would be very practical in its application.

663. RUBBER FORMULATIONS AND OTHER MATERIALS

The problem is to develop rubber or rubber-like materials which wall maintain their functional properties over the temperature range of —65°F to 160°F. Silicone compounds with high tensile strength and elongation are available as a result of research studies during the last few years. Considerable research has been done on butadiene type polymers and several satisfactory elastomers have been developed for general purpose use. Oil-resistant polymers present an unusually difficult problem in that, in general, the polarity of the molecule, necessary for oil resistance, contributes to poor low temperature resistance. The fields of fluoro-carbons, polysulfides, etc., are under investigation to develop fuel and chemical resistance Arctic rubbers.

664. ADHESIVE TAPE, INDUSTRIAL

Scope.—To develop a pressure adhesive tape having the following characteristics: (1) Inexpensive and not composed of strategic or critical materials; (2) Capable of application without use of heat in temperatures as low as —40°F; (3) Desirable, although not mandatory, that the tape be suitable also for use in temperatures to +125°F; (4) Must be capable of withstanding weather conditions for at least one year without peeling; (5) Capable of storage in temperatures from —80°F to +160°F without serious deterioration; and (6) Capable of adhering to various materials.

Military Application.—For use in sealing panel joints on prefabricated buildings.

665. NEW MINIATURE RADIO EQUIPMENT CONSTRUCTION METHODS

Scope.—Utilization of miniature equivalents of standard size component parts in the development of sub-assemblies which will permit construction of ultra-compact radio equipment, and simplify maintenance; and design of miniature components not already available.

Military Application.—Weight and volume are all-important considerations in the design of military electronic equipment. Man-packed equipment must be carried in addition to the individuals' personal and fighting equipment, and even the larger semi-fixed type of set must be made up of man-transportable components, as mechanical loading and unloading facilities are seldom available in the field.

Status and Objectives.—Many miniature and sub-miniature components and sub-assemblies were designed during the war years, but much remains to be done in this field. Particular attention should be focused on streamlining those items which contribute most to the weight and bulk of equipment, e.g., filters and rotating machines, while retaining the electrical characteristics which presently obtain, or even improving thereon, through the medium of radically new types. There is need also for smaller 1F tuning assemblies, capacitors, and the like, and for designs wherein the components of an entire stage or a series of stages (e.g., and audio channel) are assembled as an integral unit which can be replaced in its entirety in the event of failure.

666. DEVICE FOR PROTECTION OF HEAD AND FACE AGAINST COLD

Existing techniques for protecting the head and face against the cold seriously reduce the perceptive efficiency of the wearer. A need exists for the development of a simple device for protection of the head and face which will overcome the average soldier's inhibition against wearing face masks and similar devices over his face and which will be compatible with other face and head equipment which may be used under various conditions.

667. SUPPLY SYSTEM FOR USE ON GLACIERS

Practical rapid logistics supply system up glaciers which may be too steep for normal vehicles for transport of liquid fuels and heavy supplies not economical for extensive air lift. Glaciers will be apt to have slow movement of flowing ice and may be dangerously crevassed, occassional flowing streams, pits, and scattered rocks or bare morainic ridges.

668. A PERSONAL HEATING SYSTEM

A device that will distribute heat over the human body for exposures at sub-zero temperatures and moderate winds that will permit nidividuals to walk about; work with hands; ride or drive in unheated vehicles; or sleep without outer shelter. Device must be independent of any restricting or heavy electrical powers source.

Must have adjustable heat in-put and must be capable of a minimum of 8 hours operation without refueling. Must permit rapid discarding or ventilating and not hamper agility when greater activity tha nmoderate walking becomes necessary. Shall not create a fire hazard, "hot spots" that will burn the body, cause toxic fumes or other human hazard. Must be reasonably lightweight, compatible with normal Arctic clothing, and above all practical.

Preliminary studies show that inventive genius is needed primarily to produce a practical non-electric distribution system or a very light, silent, portable power unit. Heat can be pumped into torso to counteract heat losses from hands, feet and head. Although hands and feet feel the cold, internal circulation prevents (and is even physiologically dangerous) effective heating of extremities. If torso is warmed sufficiently, normal circulation will keep extremities adequately warm. Critical safe upper temperature limit at skin surface is under 100 degrees F.

SOVIET R&D

In accordance with request credit is given to the Embassy of the USSR, Washington, D. C., for this material.

LEARNING MORE ABOUT OUR PLANET

By Mikhail Molodensky
Corresponding Member,
USSR Academy of Sciences

Observations of the man-made satellites will lead to important conclusions as to the precise shape of our planet. Even the moon's movement allows us to determine one of the basic features of the earth's structure, namely, the fact that it is compressed at the poles.

As sputniks move in their orbits, they react to every change in the earth's gravitational field, with the line of flight indicating irregularities. With this new data and the use of modern astronomical and radiolocation methods, the dimensions of our planet can be determined with infinitely greater precision than was previously possible.

The plotting of the trajectories of a number of artificial satellites will finally enable us to determine the exact configuration of the earth, an extremely important element in the study of the origin, history and structure of our planet. By knowing the satellites' speed we shall be able to calculate precise measurements of the distances between various points on the globe, thus making present data more accurate.

Geochemists have found out much about the earth's chemical composition. But man-made satellites provide the means for many new findings. New data will be available on the chemical composition of the earth and the changes in this composition that are produced as a result of various cosmic radiations.

Sputniks open new avenues for research in all the earth sciences —gravimetry and geochemistry, geodesy and geophysics, seismography and hydrology. They will give us important information on the composition of the cosmic dust that floats through interstellar space. Science has thus far merely guessed at its nature and properties, but the satellite laboratory will afford the possibility of undertaking a study of this problem from stage to stage.

OBSERVATIONS IN SPACE

By Victor Ambartsumyan
President,
Armenian Academy of Sciences

In studying celestial bodies, we astronomers have always been enormously handicapped because our observatories and scientific stations are at the bottom of the air ocean which envelops the earth, an ocean hundreds of miles deep. We have dreamed of observatories outside the atmosphere and the sputniks have brought our dreams close to reality.

Now we can confidently predict the construction of satellite observatories within a few years which will circle the earth at an altitude of several thousands of miles and transmit scientific data from interplanetary space.

One of the next steps is a rocket capable of penetrating beyond the sphere of terrestrial gravitation, of reaching the vicinity of the moon and of circumnavigating it. Such a rocket would give us a wealth of information on the nature of lunar terrain and the structure of the dark side of the moon that is not visible from the earth.

Development in electronic computers has reached a stage where we can design instruments for rockets or satellites which will not only make measurements, but will decide, without human guidance, what measurements need to be taken in relation to earlier ones made.

Every possibility exists for a relatively early launching of these observatories in space and, in a future not too distant, for the launching of manned space ships into the great reaches of the cosmos.

THE WORLD'S WEATHER

By Aleander Abukhov
Corresponding Member,
USSR Academy of Sciences

Air masses that form above ocean areas often determine the weather of land areas. Unfortunately we know so little about these great wastes of water which cover two-thirds of the globe that we have no way to forecast devastating typhoons and tornadoes.

Because of the lack of mereorological data, the Pacific Ocean and parts of the Atlantic and Indian Oceans are not charted at all on synoptic maps which summarize observations taken over a wide region at about the same time. This is also true of the polar regions and of some mountain areas.

All in all, from the greater part of the earth's surface we obtain no weather data, and this cannot but help affect the accuracy of our forecasts. Little is known today about even so comparatively simple a question as the distribution of clouds over the globe and the distribution of air currents connected with them because of the difficulty of solving this question by "terrestrial" means only.

Meteorological rockets provide valuable information but cannot answer all questions. Immeasurably broader possibilities for study of the upper reaches of the atmosphere and of its lower regions where weather is made are opened by the creation of man-made satellites. In their courses around the globe they describe complex paths which cover almost all territories of the earth.

Satellites make it possible to obtain detailed information about the movement and distribution of clouds throughout the globe and, consequently, of the air currents over most of its surface. That is of great value in advancing studies of the general circulation of the terrestrial atmosphere and creating physically substantiated methods for long-range weather forecasts.

To investigate the complex movements and changes in the atmosphere we must know the earth's albedo, the quality of energy the earth reflects into space. Satellite observations will supply us with this vitally necessary information. They will also fill in the very scanty data we now have on the density of air at high altitudes, the interaction of the atmospheric layers, and supply other such information with which we can accurately determine the laws of weather formation.

THE EARTH'S MAGNETIC FIELD

By S. Dolginov and N. Pushkov
Masters
USSR Physico-Mathematical Sciences

Measurements of the terrestrial magnetic field were made until recently either on the ground or with the help of aircraft and rockets. Analysis of the measurements led to the conclusion that the field should be considered as consisting of two parts: one due to sources within the earth, and the other to extra-terrestrial sources whose share is from one to three per cent.

Existence of external sources is confirmed by swift changes in the terrestrial magnetic field, known as diurnal variations of the earth's magnetism, magnetic disturbances and magnetic storms. These changes are closely interconnected with such extra-terrestrial phenomena as solar activity, the state of the ionosphere, the ourora borealis and cosmic rays.

Investigation of diurnal variations, magnetic storms and the phenomena connected with them led scientists to assume that the external magnetic field may be due to systems of electric currents existing beyond the earth.

The most likely place where such currents can originate is the ionosphere—those layers of atmosphere which contain a large number of electrically charged particles.

It is also assumed that currents may exist beyond the ionosphere. The source of extra-ionospheric currents may be the charged particles, corpuscles, emitted by the sun, captured by the earth's magnegtic field and revolving around the earth in the plane of its magnegtic equator.

During the International Geophysical Year the variations of the external magnetic field will be recorded uninterruptedly by a large number of ground stations. It is also planned to measure it from rockets and satellites to verify the existence of extra-ionospheric system of currents, and extend our knowledge of the main part of the earth's magnetic field.

MEDICAL AND BIOLOGICAL DATA SENT BY SPUTNIK II

Key to Symbols:

CR—Cosmic rays.
SR—Solar radiation (ultra-violet and X-rays).
GO—Gravity zero (weightlessness).
R—Respiration.
C—Cardiac activity.
B—Blood pressure.

AIR/SPACE

***FAIRCHILD VTOL DESIGN** is shown in this artist's concept of Army vertical take-off and landing (VTOL) vehicle, being developed by Fairchild Aircraft at Hagerstown, Md. Designed to utilize maximum lift provided by a vectored slip stream, plane is scheduled to fly later this year. Contract was awarded Fairchild by Army's Transportation, Research and Engineering Command. Fairchild also holds research contracts on missiles for the Air Force; a jet wing design for the Navy; and a high-speed surveillance drone for the Army's Signal Engineering Laboratory.*

///Fairchild 0122/

***GENERAL OUTLOOK:** Military Aircraft Sales: decreasing. Although dollar outlay increases with individual aircraft becoming more expensive, overall military sales continue to slide. Individual bright spots: Chance Vought receives $326 million in Navy contracts — $300 million for F8U-1, -2, -3 series and another $26 million for further work on REGULUS II. North American, already fat on WS-110A exotic fueled bomber contract, receives nod to develop LRI WS-202, boron powered long range interceptor. Future: race beginning on nuclear powered plane. Lockheed, Martin, Convair, all strong bidders. Missiles: increasing. More opportunities. Swing to solid propellants. New solid propellant missile for Army will be PERSHING, will feature safer, more simplified handling, flexibility of operation. Missile subcontracting: decreasing. Future: Recognition to TITAN has been given by military leaders as having superior guidance system, may be used as guide for other super-sophisticates. Biggest need in Air/Space: reliability.*

FEDERAL FISCAL 1959 AVIATION BUDGET

calls for expenditure of $10.2 billion for aircraft and missiles, slighly less than $10.4 billion estimated expenditure for FY 1958. New obligatory authority (funds for ordering new eauipment) of $3.8 billion was requested for missiles and $5.8 billion was requested for aircraft. Overall procurement of military hardware during FY 1959, aircraft and missiles, will take nearly 75 percent of total estimated expenditure of $13.75 billion.

669 (12) ///FY 1959 Budget & AIA release 0115/

SPACE TECHNOLOGY COMMITTEE

has been established by National Advisory Committee for Aeronautics, James H. Doolittle, chairman of NACA announced Jan. 13. Doolittle said new agency would, ". . . bring into sharper focus the substantial and increasing effort of the NACA on problems of flight beyond the earth's atmosphere."

670 (2) ///NACA 0113/

WEIGHTLESSNESS STUDIES AT CORNELL

are means of determining expected behavior of occupants in rockets, satellites or other space vehicles when they experience weightlessness in outer space. Under ARDC contract, Cornell Aero Lab has made studies. Using rats and monkeys during controlled tests, Cornell has made valuable conclusions that will aid man in similar weightless situations. In general, it was found that although certainly not a normal situation, adjustments can be made by animals tested in weightlessness.

671 (3) ///Cornell 0112/

ELECTRONICS COMMUNICATIONS

***GENERAL OUTLOOK:** Sales: Increasing. With 43 percent of missile costs going for electronic gear, sales continue rising. Individual bright spots: RCA receives $721 million radar contract, Burroughs gets $21 million on computer R&D work, Sperry-Rand named weapon system manager for SAC countermeasure contract. Subcontracting: decreasing. Future: complexity of electronic gear should increase subcontracting later in year as primes fatten on new large DOD budget. Additional $1.2 billion from DOD for missile programs and R&D should further push posh primes to subcontract more specialized parts. Biggest need: standardization.*

SPACE SENTRY TRACKS EXPLORER

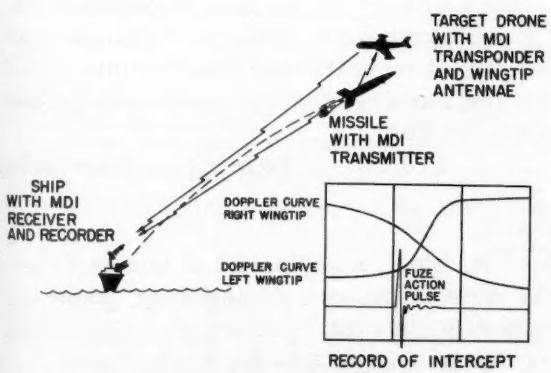
satellite. Giant new radio transmitter of Army SigCor at Ft. Monmouth, N. J. By use of highly directional antenna, transmitter power of SPACE SENTRY is packed into narrow beam equal to million and a half watts. This lightning-jolt signal is millions of times more powerful than transmitter in Army's EXPLORER. X-672 (2) ///Pentagon OPI 0203/

AIRCRAFT INSTRUMENTATION SIMPLIFICATION

Result has been ANIP (Army-Navy Instrument Program) Contact Analog, which is combination windshield and flat tv tube. When not used for insruflight, pilot looks through tv tube as if it was window. In instrument conditions, however, tv gives pilot pictorial representation of ground with tracer lights leading him. Object of ANIP is to be able to take untrained youths from Main Street, USA and make them qualified instrument pilots in three months. 673 (1) ///Nav Air News 01-12/

SEAGOING COSMIC-RAY OBSERVATORY

will have important practical implications in communications. ONR wants cosmic-ray map of world. Swedish merchant ship, LOMMAREN, sailing between homeland and South Africa, carries three-ton neutron monitor. Ship collects cosmic-ray data for plotting lines of constant intensity of isocosms. 674 (1) ///ONR 0114/


TARGET DRONE WITH MDI TRANSPONDER AND WINGTIP ANTENNAE
MISSILE WITH MDI TRANSMITTER
SHIP WITH MDI RECEIVER AND RECORDER
DOPPLER CURVE RIGHT WINGTIP
DOPPLER CURVE LEFT WINGTIP
FUZE ACTION PULSE
RECORD OF INTERCEPT

U.S. NAVAL ORDNANCE LABORATORY'S MISS DISTANCE INDICATOR

***VERY HIGH FREQUENCY RADIO SYSTEM** tells missilery crews how close they came to target when they use new "miss-distance indicator" developed at NOL. This is artist's conception of encounter between missile and jet plane. Signals from transmitter inside missile are sent automatically to both ship and drone type aircfaft, upper right. A relay station, or transponder, in target plane then retransmits the missile's signal back to the mother ship on another radio wavelength. Insert on lower right is an enlarged facsimile of a graph made by electronic recording device at shipboard receiving station. Vertical timing lines are a hundredth of a second (0.01) apart. Electronically traced curves show progress of target plane's wing-tip antennas through the air. Fuze action pulse is traced when the missile sends out its signal at the point of closest approach to the target.*

///NOL 0115 USN 710038/

CONSTRUCTION

BEAUFORT, S. C. TO GET 1100 CAPEHART HOMES

Hq. Marine Corps announced Jan. 24. New homes will be shared by personnel of Marine Corps Recruit Depot, Parris Island, and Marine Corps Air Facility, Beaufort. There will be 235 officers' and 865 enlisted men's quarters. Albert Gerstin and Assoc. of Beverly Hills, Calif., has been awarded the $16,586,284 contract. X-675 (1) ///Pentagon OPI 0124/

NATION'S FIRST MISSILE ENGINE SERVICE CENTER

being built by Rockeldyne division of North American Aviation near Canoga Park, Calif., will cost NAA $1,500,000. Factory will be devoted to overhaul and parts supply for ATLAS, THOR, JUPITER and other missiles.

676 (1) ///NAA 0110/

TRAVELING BRIDGING DEVICES

are in experimental development both in U. K. and U. S. Looking like wheeled draw bridges, devices are aimed at sustaining weight of heaviest armored vehicle of either nation. Only device currently operational is British "Centurion Bridge Layer." It will hold heaviest tanks. Others under test are British linked-arc folding assault bridge, U. S. tank-mounted scissors bridge, and U. S. self-propelled assault bridge. ///Interview, Army Office Info/

CURRENT & FUTURE ARMY ENGINEER CONSTRUCTION PROJECTS

facts and figures for construction and planning based on Fiscal Year 1959 have been released by Dept. of Defense. Special 13-page compilation gives dollar value and type of construction for each project.

677 (13) ///Army Engineers, DOD/

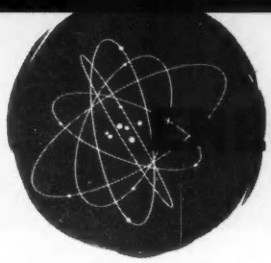
AIR FORCE TO SPEND $5 MILLION AT ANDREWS AFB

for a new runway and other facilities. News was revealed by Representative Lankford (D) of Maryland in article in Washington Star Feb. 4. Fifth District legislator said AF headquarters notified him it is releasing $5,060,000 under its FY 1958 construction program to provide runway, taxiway and operations apron, plus storage and communications facilities.

678 (1) ///Washington Star 0204/

NAVY DENTISTS GET RADIOISOTOPE BRANCH

at National Naval Medical Center, Bethesda, Md. Installation of nuclear reactor at Center makes possible for first time in history of denistry, production of short half life radioisotopes locally, in close proximity to patient. In other Navy Medical construction, new Naval Dental Clinic, U. S. Naval Base, Los Angeles (at Long Beach) has been established. Navy now has 10 naval dental clinics for extensive service. 679 (2) ///BuMed 0122/



INFORMATION ON CONTROLLED H-BOMB FUSION

was made available to public through special releases of Jan. 24 of AEC. Important breakthrough in fusion research could make possible limitless cheap power for world. One of AEC releases of Jan. 24 on subject was 11-page report summarizing American fusion studies including synopsis of Hagerman-Mather paper on production of neutrons in Cloumbus II straight pinch-tube apparatus. 680 (11) ///AEC 0124/

NUCLEAR A/C AND MISSILE ENGINES

are under development by several airframe and engine manufacturers. Although priorities for evolution of atomic plane, which could stay aloft almost indefinitely with no need to land for fuel, have been reduced in past year in favor of ballistic missile programs, program still is important in minds of military planners. AEC's spending for a/c and missile reactors neared $100 million mark in FY 1957 ($86.7 million for research and development, $6.2 million for construction) and will probably climb beyond that level this fiscal year. 681 (3) ///Aircraft Indust. Assoc./

AEC OFFERS TO INDEMNIFY CONTRACTORS

under authority contained in indemnity legislation ruled by 85th Congress. AEC enters insurance picture, offers statutory indemnity to major contractors, protecting them and public against losses arising from nuclear accidents. Announced Jan. 16. 682 (1) ///AEC 0116/

AEC-MARITIME PICK GENERAL DYNAMICS

to develop Maritime Gas-Cooled Reactor (MGCR). Initial project will include development of high temp fuel elements, reactor controls, selection of proper coolant and moderator and compatible turbine machinery. Gen Dy was selected from field of 18 project bidders. Upon completion of development work, design and fabrication of prototype plant will be undertaken. Plant will take five to seven years to complete. 683 (2) ///AEC 0124/

WESTINGHOUSE RECEIVES $1,548,679

for new atomic submarine equipment. Contract includes propulsion motor; propulsion turbine generators; propulsion controls; ship-service turbine generators and steam condensing equip for Navy's new small atom sub.
X-684 (1) ///Pent OPI 0124/

CURTISS-WRIGHT, G-E, GM TO GET AEC STUDY CONTRACTS

to develop compact nuclear reactor systems for military use. Study contracts are for 2000 kw mobile power units with low weight.
685 (1) ///AEC 0124/

LOGISTICS : MATERIALS

NEW AIRCRAFT DETERGENT

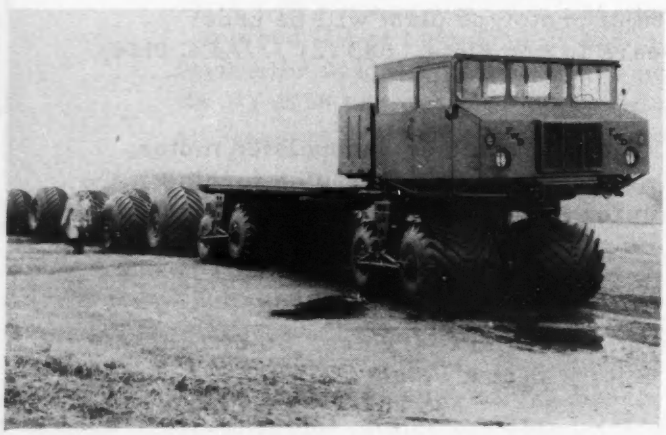
developed by ARDC will protect fish and game in local community streams. AF bases are now using new alkaline water-base cleaner which consists of alkaline phosphates, silicates and wetting agents — basic ingredients of familiar household detergents. Previously, a kerosene-base solvent was used. Rinsed with water, the solvent drained into sewer systems leading to local streams where it polluted water, killed fish. At large AF bases, problem multiplied by number and size of planes. Eight-jet B-52 STRATOFORTRESS, for example, requires approx. 5000 gallons of water for one bath, averages 12 baths a year. Only solution seemed to be costly solvent-recovery system until ARDC's Wright Air Development Center personnel produced formula for new detergent. 686 (2) ///ARDC 0127/

AVIATION GASOLINE BETTER AFTER ARCTIC STORAGE

Army engineers have found. Avgas stored by Army in Arctic Icecap pits of nearly 1200 feet for appx. six months was found to contain less moisture than when originally stored as result of low and constant temp in storage. Avgas, which evaporates rapidly and takes on impurities quickly under normal climatic conditions, can be stored indefinitely in pits under ice, according to scientists employed by Snow, Ice and Permafrost Research Establishment, Wilmette, Ill., a Corps of Engineers Laboratory. X-687 (2) ///P 0115/

POPCORN SHOWN POOR CUSHIONING MATERIAL

USAF research report reveals. Used in some instances in packaging electronic equipment, popcorn is not a good cushioning material, special Dept. of Agriculture study for AF at WADC reveals. Results showed popcorn to be relatively stiff and to have very little ability to recover after compression. 688 (1) ///Commerce 0116/



NEW FUEL TRAIN by Four Wheel Drive Auto Company can go where conventional tank trucks cannot. It carries 5000 gallons of fuel in 10 huge rubber containers developed by Goodyear Tire & Rubber Company. Big containers, each 5 feet high and 3½ feet wide with capacity of 500 gallons, are mounted in pairs on FWD axle and towing assemblies equipped with filling, emptying and braking systems. Developed for Army's Transportation Research and Engineering Command, over-all capacity of such a fuel train is limited only by pulling power of towing vehicle. Unique FWD TERACRUZER pulls the train here but it can be pulled by various types of vehicles. TERACRUZER is type used as ground support for Air Force's MATADOR missile, and is equipped with big low pressure Terra-Tires also developed by Goodyear. ///Goodyear 0109 07006-158/

ORDNANCE

CAPTAIN W. R. HUNNICUTT, JR.
BUREAU OF ORDNANCE, USN
SPECIAL PROGRAMS DIRECTOR

GENERAL OUTLOOK:

There is a continuing realization within the Bureau of Ordnance that conventional weapons are here for quite a while and that supporting products in conventional weapons will be required for a long time to come. It would appear now that there will be at least as much business in this field in 1958 for small business contractors as there has been in recent years.

More activity will be seen in the Bureau of Ordnance plans for what we call the "Bumblebee" family of missiles. These include the TERRIER and TALOS and some other missiles. These "Bumblebee" missiles are under the technical responsibility of the Applied Physics Laboratory, The Johns Hopkins University. There is much that subcontractors have done and can do on this program.

The fact that there is great competition for the dollar makes it necessary for us to get more for our money in 1958. BUORD will attempt to do that in two main ways: (1) First, we are participating in the Department of Defense Standardization Program. We want to get away from so-called "Proprietary Items", parts specially made by a contractor from time to time so that he will be the only one capable of making the product. (2) Secondly, Value Engineering has become a big issue here. We are going to follow the lead made by the Bureau of Ships and give an incentive to the BUORD contractor so that he will look to save us more money. What we hope to do eventually is have clauses in contracts whereby the manufacturer who saves us money over the amount of the original contract will be entitled to receive a percentage of the difference as his reward for effective value engineering. This percentage may run up as high as 45 percent, depending on the type contract and product.

NOSE CONE RECOVERY SYSTEM used on U. S. IRBM and ICBM vehicles does many things. The system, developed by Cook Electric of Chicago, releases parachute at given point in re-entry, detonates explosive anchor screws, tosses out a balloon and inflates it as a water platform to keep cone near surface of water and support radio beacon and light, short time after water entry recovery system explodes small depth charge for Navy to sound range on point of impact, finally, device spreads shark repellent to protect Navy frogmen who retrieve cone. 689 (2) ///Cook Electric. Tech Topics issue 5/

QUICK PICK-UP – New North American-developed and produced tow target boom extends from belly of F-100 SUPER SABRE to snatch Air Force DART target tow rope from ground standards. Device enables Air Force to use for first time supersonic fighters for towing targets at speeds above that of sound which will greatly aid gunnery training.

///NAA 0114 N-141/

SHIPS

PRESERVATION COATINGS FOR SHIPS, MIL-SPEC 15328

and various marine coatings used in treating hulls are discussed in lead article in BuShips Journal for February. Six-page article describes describes details involved in selection of Navy paints and furnishes information regarding some of paints that are specified as well as those under consideration for standard Navy use. 690 (6) ///BuShips Journal 02-2/

NEW SHIPBOARD GARBAGE DISPOSAL UNITS

have been developed at Naval Research and Development Facility, Bayonne, N. J. New type grinders are designed to reduce vibration and jamming and to require smaller consumption of fresh water. BuShips has authorized one of two new type grinders on several destroyers at Long Beach. Vertical unit is similar to civilian model found in homes, but has much higher speed — 3600 rpm. Until new types are available for general use, standard BuShips Instruction 9360.11 on handling of garbage remains in use. Article has diagrams. 691 (1) ///BuShips Journal 02-22/

CONTRACT AWARDS FOR FIVE GUIDED-MISSILE DESTROYERS

totalling $85,093,644 were announced by Navy's Bureau of Ships Jan. 31. Low bidder, Defoe Shipbuilding Corp., Bay City, Mich., will construct two destroyers for fixed contract price of $33,140,520. Second low bidder, Bath Iron Works, Bath, Me., will build two ships for fixed price of $34,133,200. Todd Shipyards, Seattle, will build fifth destroyer for price of $17,819,924. Ships will be armed with TARTAR surface-to-air missiles. X-692 (1) ///Pent. OPI 0131/

PLASTIC UTILITY BOATS CONTRACT

went to W. R. Chance and Assoc., Waldorf, Md., for construction of 33 plastic utility boats at fixed price of $424,686.57. These open boats will have portable canvas canopies and will be used to transport personnel and general cargo. 693 (1) ///Pent. Trade Press 0123/

SMALL BOAT CONTRACT OF $1,241,229.74

went to Marinette Marine Corporation, Marinette, Wisc., for construction of 101 36-foot steel personnel landing craft (LCPL), Navy announced Jan. 21. X-694 (1) ///Pentagon OPI 0121/

WESTINGHOUSE GETS $18,630,000 FOR SUB REACTOR COMPONENTS

for three nuclear fleet ballistic missile submarines. X-695 (1) ///P 0203/

ANTI-SUB WARFARE WILL USE MARTIN P6M

says V/Adm. W. V. Davis. Also, P6M will refuel from subs. Big 4-jet seaplanes are now undergoing flight tests. Pix avail. X-696 (1) ///P 0131/

EXTRA COPIES OF THE FOLLOWING RELEASES ARE AVAILABLE
Send 50¢ to cover mailing and handling costs for each desired release.

DEPARTMENT OF DEFENSE RELEASES ON ARMY "EXPLORER" SATELLITE

Number	Date	Title	Pages
E1 65-58	1/31	FACT SHEET - ARMY SCIENTIFIC EARTH SATELLITE	(4)
E2 77-58	1/31	FACT SHEET - ARMY SATELLITE TRACKING SYSTEM	(4)
E3 75-58	1/31	FACT SHEET - ARMY BALLISTIC MISSILE AGENCY AND JET PROPULSION LABORATORY	(6)
E4 67-58	1/31	STATEMENT BY DR WERNHER VON BRAUN	(1)
E5 66-58	1/31	STATEMENT BY MAJ GEN J B MEDARIS	(1)
E6 87-58	2/1	STATEMENT BY SECDEF NEIL MCELROY	(1)
E7 85-58	2/3	FINAL HOUR BEFORE SATELLITE FIRING	(3)
E8 91-58	2/3	ARMY SPACE SENTRY AIDS EXPLORER TRACKING	(2)
E9 86-58	2/3	YEARS OF WORK PRECEDED SATELLITE LAUNCH	(2)

SIGNIFICANT DOD RELEASES DURING PERIOD JAN 1 THROUGH JAN 15

Number	Date	Title
1-58	1/1	NAVY AWARDS $100 MILLION TO CHANCE VOUGHT ON F8U-3
4-58	1/3	ARMY AWARDS CONTRACT ON 15-MAN PLASTIC BOAT
5-58	1/3	LIGHTWEIGHT MINE DETECTOR DEVELOPED BY ARMY
6-58	1/6	JOINT ANTILLES DEFENSE COMMAND UNDER ADM WRIGHT
7-58	1/3	(for the press) GEN POWERS ANNOUNCES TWO IRBM UNITS
8-58	1/6	ADDRESS BY ADM BURKE, NATL PRESS CLUB, WASHINGTON
9-58	1/4	(for the press) MISSILE CONTRACT TO CHRYSLER ON JUPITER
10-58	1/6	AIR FORCE COMMITTEE MAKING R&D STUDY
11-58	1/7	NAVY FLAG OFFICER CHANGES ANNOUNCED
12-58	1/7	FIVE ARMY GENERAL OFFICERS GET NEW ASSIGNMENTS
13-58	1/7	FACT SHEET - ARMY AIRCRAFT
14-58	1/8	NAVY OCEAN RESEARCH IN BATHYSCAPE
15-58	1/9	ARMY INFO DIGEST DETAILS ARMY PLANS FOR 1962
17-58	1/13	$627,670,000 SOUGHT FOR CIVIL WORKS BY ARMY IN FY 1959
20-58	1/10	MORE NAVY FLAG OFFICER CHANGES ANNOUNCED
21-58	1/10	FT BLISS WILL BEGIN NIKE-HERCULES CREW TRAINING
22-58	1/10	DEFENSE AND COMMERCE DEPTS TO SHARE AIR CONTROL
23-58	1/10	(for the press) ATLAS FIRING
24-58	1/10	(for the press) SOLID PROPELLANT REDSTONE
25-58	1/13	ADDRESS BY GEN WOOD, N CAROLINA STATE COLLEGE
26-58	1/15	ADDRESS BY R WILLERY, DIR ARMY CIV PERSONNEL, K C
27-58	1/15	ARMY FINDS AVGAS IMPROVES WHEN STORED IN ARCTIC
28-58	1/14	DEPT OF DEFENSE SUMMARY OF NOV ARMED STRENGTH
29-58	1/14	NEW ASSIGNMENTS FOR ARMY GENERALS
30-58	1/15	ADDRESS BY ASST SEC AF SHARP, BOWMAN INST, FT WAYNE
31-58	1/14	ANCHORAGE COMMUNICATION FACILITIES TO USA ALASKA
32-58	1/14	CHANCE VOUGHT, $26.2 MILLION FOR REGULUS II MISSILES
33-58	1/15	NAVY ANNOUNCES OP STATUS OF TWO NEW TORPEDOES

(Significant DOD Releases, Jan. 1 — Jan. 15, continued)

34-58	1/15	LT GEN ARTHUR TRUDEAU NAMED CHIEF ARMY R&D
36-58	1/15	TWO SUB EXPERTS ORDERED TO POLARIS PROJECT
37-58	1/15	NAVY HAS NEW DEVICE FOR ANTI AIR TRAINING
38-58	1/15	CHANGES IN ARMY ANNOUNCED BY SEC BRUCKER
39-58	1/15	AF TO ACTIVATE BOMARC TRAINING WING

SPECIAL FACT SHEETS ON ARMY, NAVY, AF MISSILES — JUST OUT

Copies of these missile fact sheets sent on request, 50¢ each

96-58	2/8	FACT SHEET - ARMY GUIDED MISSILE PROGRAM	4 pages
97-58	2/8	FACT SHEET - NAVY GUIDED MISSILE PROGRAM	6 pages
99-58	2/8	FACT SHEET - USAF GUIDED MISSILE PROGRAM	16 pages

FACT SHEET ON NAVY'S RAT (Rocket Assisted Torpedo)

Only one copy of this release of Feb. 10 was available, but anticipating demand, we have retyped the release verbatim and reproduced it by offset to send you complete three-page explanation of Navy's new anti-sub missile, RAT. Sent on request. Ask for RAT FACT SHEET. 50¢ per copy.

(DOD INSTRUCTIONS, continued from page 2-15)

DOD INSTRUCTION 2045.2 OF JAN. 20, 1958

Subj: U. S. - Canada Agreement for Qualification of Electronics Products of Non-Resident Manufacturers. WHAT IT DOES: States the conditions and procedures which will be used to list products of Canadian manufacturers on qualified products lists (QPL's) maintained by Armed Services Electro-Standards Agency (ASESA) and to list products of U. S. manufacturers on qualified products lists maintained by Canadian Military Electro Standards Agency (CAMESA). 699 (5) ///DOD 0120/

DOD DIRECTIVE 3232.8 OF JAN. 14, 1958

Subj: Industrial and Commercial Technical Services. WHAT IT DOES: Establishes Dept. of Defense policies and criteria for utilization and administration of certain industrial and commercial technical services in accordance with the basic policies of the DOD Maintenance Engineering Program (DOD Dir. 3232.1). 700 (9) ///DOD 0114/

DOD DIRECTIVE 7800.5 OF JAN. 6, 1958

Subj: Defense Contract Financing - Percentages for Progress Payments Based on Costs. WHAT IT DOES: Establishes percentages for progress payments lower than any previously in effect on earlier Defense Dirs. Formerly, normal progress payments were 75 percent of total costs or 90 percent of direct labor and material costs. That will be changed, 7800.5 says, to 70 percent of total costs, 85 percent of direct labor and material costs. New directive will pick up all Defense contracts awarded on and after Sept. 1, 1957. 701 (3) ///DOD 0106/

DOD INSTRUCTION 4165.22 OF JAN. 6, 1958

Subj: Leasing Family Housing at Tactical Installations. WHAT IT DOES: Allocates authority for leasing housing facilities where there are shortages of Gov. housing, establishes reporting regs. 702 (2) ///DOD 0106/

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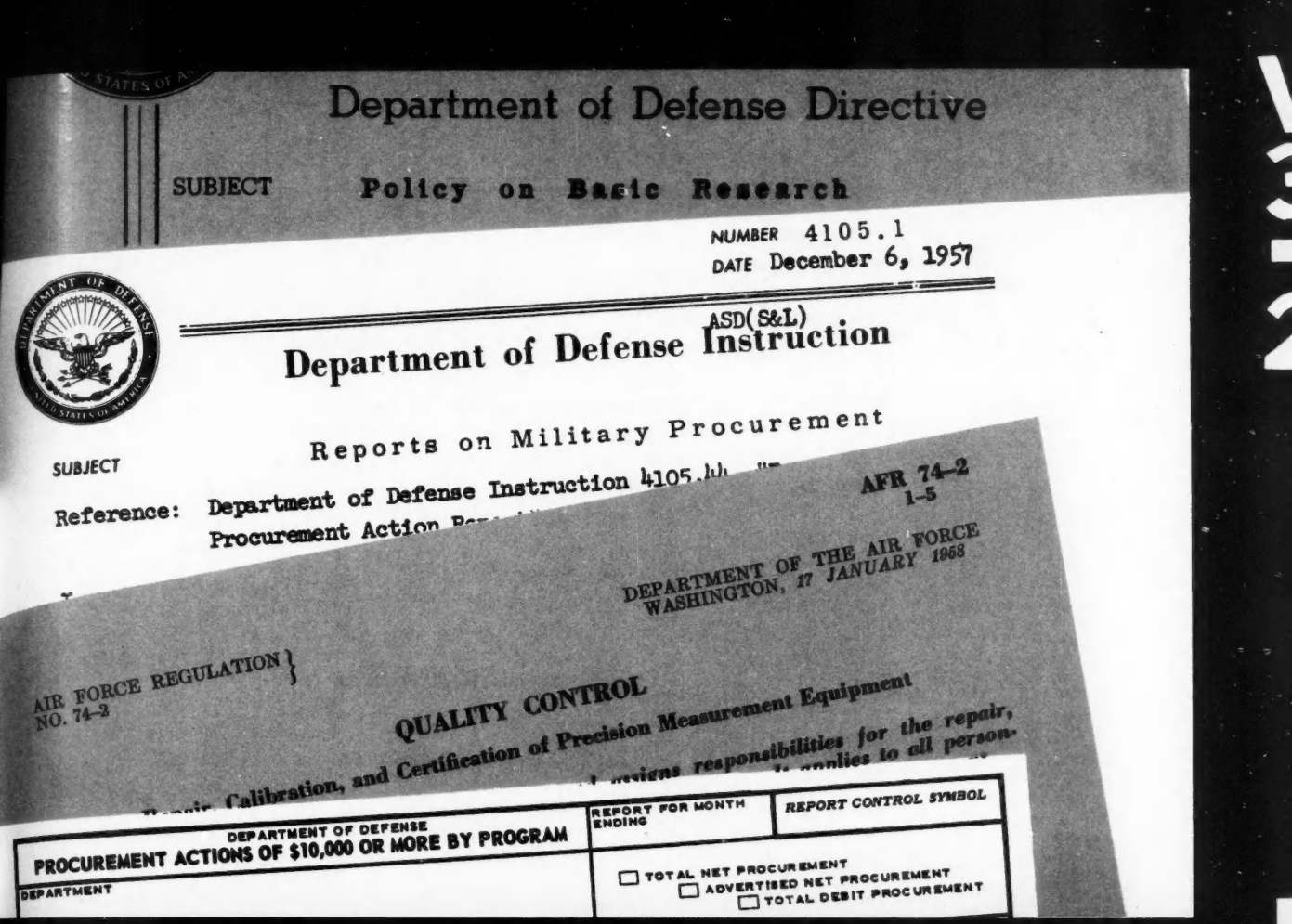

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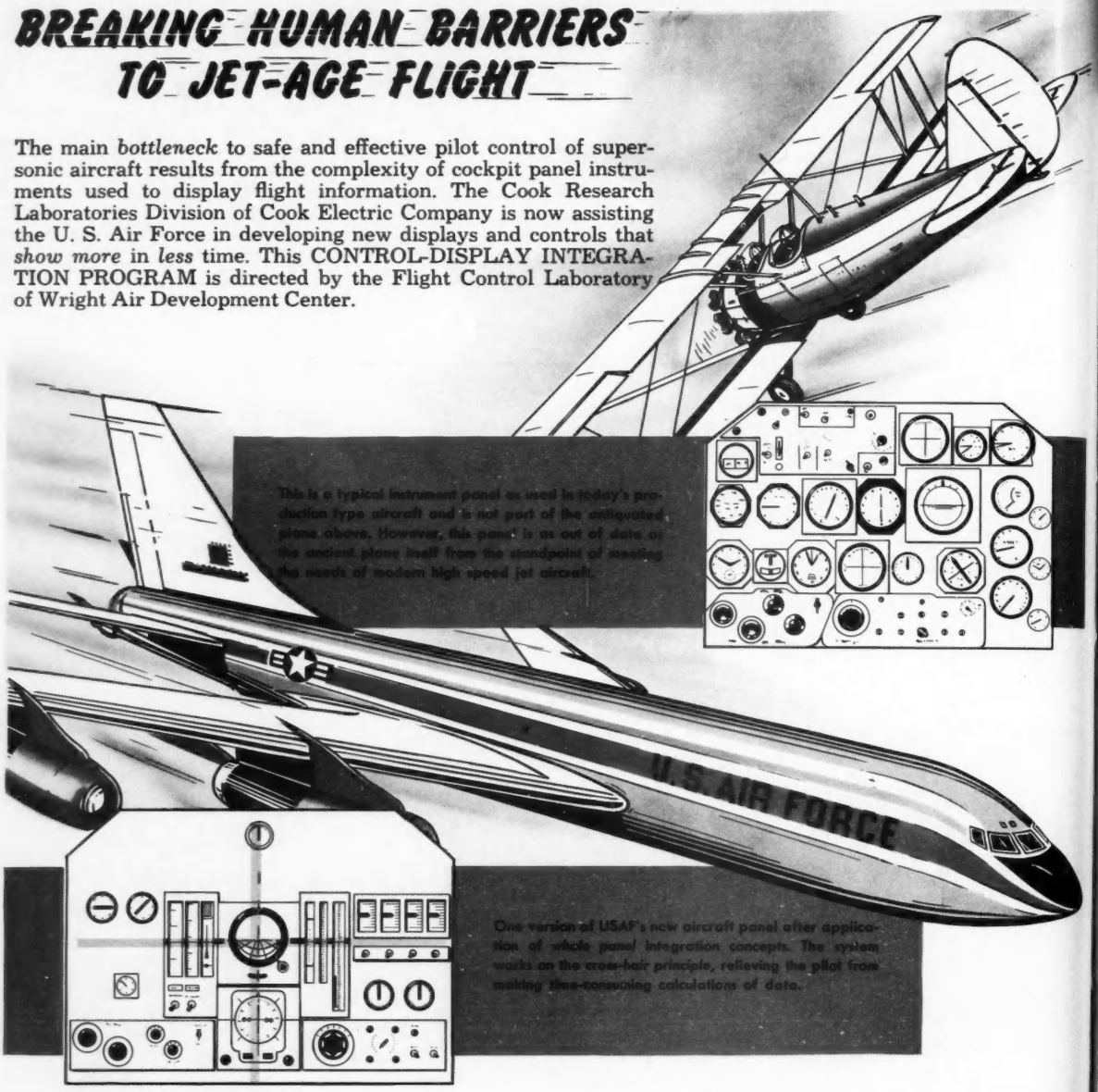

This is a typical instrument panel as used in today's production type aircraft and is not part of the antiquated plane above. However, this panel is as out of date as the ancient plane itself from the standpoint of meeting the needs of modern high speed jet aircraft.

One version of USAF's new aircraft panel after application of *whole panel* integration concepts. The system works on the cross-hair principle, relieving the pilot from making time-consuming calculations of data.

The objective of the *whole panel* program is to eliminate as much as 30% of the maze of instruments and dials that a pilot must scan, and provide more information in an easier to use form. This new panel concept has resulted in a simplified design using the *cross-hair principle*. In this case, however, the vertical and horizontal cross-hairs are not fixed but are made up of many small segments by means of moving tapes.

In normal operation the cross-hairs appear intact. Any deviation of the segments, however small, can readily be seen by the pilot who then knows instantly that a correction is necessary. The break in the line tells him what to do to get the segment back in line. All this can be done instantly without having to read, integrate, or perform conversions of flight data as now required.

Cook Research Laboratories take pride in being able to participate in the all important program of increasing the safety and effectiveness of modern aircraft both for general flight and mission accomplishment.

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February 15, 1958
SPECIAL INFORMATION EDITION
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WASHINGTON 6, D. C. — HUDSON 3-9450

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editorial

Beginning with this month's DATA magazine and DATAGRAM newsletter, we are charging for additional information.

As you know, it was not our original intention to do this. It was hoped that advertising would carry the freight. However, increased circulation without increased advertising revenue has brought a large influx of letters requesting more information without any corresponding influx of ad money.

We have, therefore, instigated a charge table which is presented below. The charges are small and should not be much of a deterent for a needed bit of of information. Yet this small amount of increased revenue from a multitude of subscribers will, it is hoped, offset our present shortage of money.

Therefore, we now invite your research letters with increased enthusiasm and promise one-day service in getting your answers out to you. We look forward to serving your research needs.

DATA PUBLICATIONS, 1346 CONNECTICUT AVENUE, N.W., WASHINGTON 6, D. C. HUdson 3-9450

This Is Our Beat

In the Washington Area

Air Force Office of Scientific Research
Air Research and Development Command
Army Engineering R&D Center, Ft. Belvoir
Army, Navy & Air Force Offices of Information
Atomic Energy Commission
Congress
Depts. of Agriculture, Commerce
Marine Headquarters
National Bureau of Standards
National War College
Navy Bureaus: Aeronautics, Medicine
Ordnance, Ships, Supplies & Accounts,
Yards & Docks
Naval Ordnance Lab
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Original source material used as the basis for our digested news articles is credited whenever possible in the three-slash source blocks found at the end of each DATA article. Each DATA news brief is numbered consecutively and its respective source material is numbered with it. The source material is then retained by us in a numerical order file, subdivided by months. When ordering additional information from DATA, please send us the *consecutive article number* and the *date of issue* which carried the article.

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Thermofax copies of DATA source material are sent on request at 50¢ for each reproduced page of source material. Number of pages in the original source is given in the parentheses ( ) following the consecutive article order number and preceding the three-slash source block. To figure the cost of receiving a photocopy of our source material on a given article, multiply the number of pages of the source by 50¢. Please enclose money with your order.

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Explanation of DATA Source Blocks

The three-slash source block at the end of the article identifies the source and gives the date (0131) or month-page number (02-22) if available. For example: ///Pentagon OPI 0131/ would mean Pentagon Office of Public Information, January 31. In like manner, ///BuShips Jnl 02-22/ would break down to Bureau of Ships *Journal*, February — page 22.

DOD DIRECTIVE 5105.15 OF FEB. 7, 1958

Subj: Department of Defense Advanced Research Projects Agency. WHAT IT DOES: Outlines and gives authority to the establishment of an agency for the direction and performance of certain advanced research and development projects within the Department of Defense. 703 (2) ///DOD 0207/

DOD DIRECTIVE 3232.8 OF JAN. 14, 1958

Subj: Industrial and Commercial Technical Services. WHAT IT DOES: Establishes a criteria for selection of contractors of technical services. 704 (9) ///DOD 0114/

Pentagon OPI Releases

NEWS RELEASES

Extra Copies of These Releases Are Available, 50¢ Postpaid

124-58	2/14	JOINT STATEMENT BY DOD, AEC ON ATOMIC HAZARDS states nuclear devices safe in crash or transport	(2)
125-58	2/14	MARINES "TOYS FOR TOTS" DRIVE AIDS ONE MILLION	(2)
126-58	2/14	ELECTRIC BOAT & MARE ISLAND TO BUILD FIRST FLEET BALLISTIC MISSILE SUBMARINES	(1)
127-58	2/14	2ND INFANTRY BRIGADE BUILDS AT FT DEVENS	(1)
122-58	2/13	DOD CONSOLIDATING W COAST ARMY & NAVY UNIT	(1)
123-58	2/13	NAVY AWARDS CONTRACT TO G-E FOR FBM SUB MACH	(1)
120-58	2/12	FIRST INTERCONTINENTAL BALLISTIC MISSILE SQDNS TO BE ACTIVATED APRIL 1	(1)
116-58	2/11	ARMY ANNOUNCES SUCCESSFUL TESTS ON COMPONENTS OF PROJECT PLATO (mobile anti-missile system)	(1)
112-58	2/10	ARMY PICKS NEW ASSIGNMENTS FOR THREE GENERALS Maj Gen E F Cardwell, Maj Gen N Costello, Maj Gen J H Harper	(1)
113-58	2/10	SEVENTH DOD NUTRITION SURVEY TO BE IN SPAIN	(2)
114-58	2/8	(for the press) RCA GETS SYSTEMS MANAGE CONTRACT	(1)
105-58	2/6	ARMY SATELLITE TO AID IN MAKING BETTER MAPS	(1)

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R-4	2/10	FACT SHEET - NAVY'S ROCKET ASSIST TORPEDO (RAT)	(3)

RECENT SPEECHES

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117-58	2/12	ADDRESS BY WM M HOLADAY, DIR OF GUIDED MISSILES	(5)
115-58	2/12	ADDRESS BY R/ADM F S WITHINGTON, CHIEF BUORD	(3)
88-58	2/3	ADDRESS BY L/GEN D L PUTT, USAF DEVELOPMENT	(2)
63-58	2/1	ADDRESS BY GEN MAX TAYLOR, ARMY CHIEF OF STAFF	(8)

PENTAGON OPI PRESS RELEASES IN REVIEW

Titles of press released issued by Office of Public Information, Department of Defense are listed below. Extra copies are available on request. 50¢ mailing and handling charge. Period covered: Jan. 16 - Jan. 31, 1958.

Nbr.	Date	Title
41-58	1/16	ARMY'S SOLID PROPELLANT MISSILE NAMED PERSHING
42-58	1/17	NAVY FLAG OFFICER CHANGES ANNOUNCED
43-58	1/18	(for the press) ARMY & AF ANTI-ICBM RESPONSIBILITIES
44-58	1/20	SYMINGTON QUESTION TO GEN TWINING TESTIMONY JAN 14
45-58	1/21	FOUR NAVY & USMC AIR STATIONS TO BE DISESTABLISHED
46-58	1/21	ADDRESS BY GEN SCHRIEVER, ECONOMICS CLUB, NYC
47-58	1/21	MAJ GEN YOUNT TO RETIRE, OTHER ARMY GEN ASSIGNED
48-58	1/21	(for the press) APPOINTMENT OF ORGANIZATION CONSULTS
49-58	1/22	WESTINGHOUSE RECEIVES $1,548,679 IN ATOM SUB EQUIP
50-58	1/21	SECDEF RELAXES CIVILIAN HIRING CONTROLS
51-58	1/21	NAVY AWARDS SMALL BOAT CONTRACT TO MAINETTE CO
52-58	1/22	MAJ GEN NUTTER CHIEF OF MIL ADVIS GROUP, PHILIPPINES
53-58	1/23	FOUR ARMY GENS RECEIVE NEW ASSIGNMENTS
54-58	1/23	ADDRESS BY AF SEC DOUGLAS, NSIA MEET, NYC
55-58	1/23	ARMY DESIGNS ALUMINIZED FIRE SUIT
56-58	1/24	ADDRESS BY DEP SEC QUARLES AT ARMED FORCES COL
57-58	1/23	IRANIAN NAVY CHIEF OF STAFF TO VISIT USN FACILITIES
58-58	1/23	SELECTIVE SERVICE ASKED TO CALL 13,000 FOR ARMY IN MARCH
59-58	1/24	1100 CAPEHART HOMES AT BEAUFORT, S C
60-58	1/28	ARMY'S NIKE-HERCULES TO BECOME OPERATIONAL
61-58	1/28	COLD WEATHER MISSILE TESTS TO BE HELD IN CANADA
62-58	1/27	NAVY FLAG OFFICER CHANGES ANNOUNCED
63-58	2/1	ADDRESS BY GEN TAYLOR, USA, STATE BAR ASSOC, NYC
64-58	1/28	BRIG GEN BOUCHEY AT NATL PRESS CLUB, AERO CLUB, D C
69-58	1/29	NAMTC AT POINT MUGU, CALIF, TO BE EXPANDED
70-58	1/29	ACTION ON 13 CIVIL WORKS PROJECTS BY ARMY ENGINEERS

NEWS RELEASES OF THE AIR RESEARCH AND DEVELOPMENT COMMAND

Only Thermofax copies of these releases are available

NEW AF PLASTIC FOAM TECHNIQUE

more adaptable for packaging because it is not sticky 705 (2) ///0217/

FIRST JET ENGINE TEST IN NEW WIND TUNNEL

at Arnold Engineering Development Center, Tullahoma, Tenn. New tunnel is different than any other design. 706 (4) ///0214/

SPEECH BY GEN M C DEMLER

at Institute of Aero Sciences, NYC 707 (16) ///0130/

data news

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R-2	_____	U. S. Guided Missiles, Handy Reference Guide lists manufacturers of main assys and parts by missile (March 1958)
R-3	_____	DATA Report on Air Force Office of Scientific Research (Feb. 1958)

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